AMERICAN Railroad Journal

·ESTABLISHED·1831·

Railroads, Tramways, Finance, New Inventions, Machinery.

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Railroad Notes.

WE invite railroad officers to send us notice of elections, transfers, appointments, resignations, etc.; and all our readers would oblige us by furnishing us with any items of news which may come to their knowledge and are of a suitable nature for our columns. It is our intention to publish monthly full and accurate information regarding those enterprises and industries to which the AMERICAN RAILROAD JOURNAL is devoted, and to effect this end we solicit the coöperation of readers interested therein. We aim specially to record all new railway enterprises in the United States and Canada, and to note the progress of construction on all new roads and extensions; and we request those concerned in railway building to give us early information concerning the above, that our reports may be as complete as possible.

CONSTRUCTION.

THE Texas and St. Louis Narrow Gauge Railway, of which Col. J. W. Paramore is president, has been completed.

THE last spike on the main line of the Northern Pacific railroad will be driven Sept. 8th. The two divisions will meet about fifty miles west of Helena, Montana.

OVER four miles of the Springfield and Southern Railroad have been graded, and it is expected that a large force will be put on in a short time, and the work rapidly pushed.

THE preliminary survey of the new branch of the Baltimore and Ohio Railroad, extending from Mt. Pleasant to Punxsutawney is nearly finished.

THE first train of the Atlantic and Pacific Railroad was run on the 8th inst. to a junction with the Southern Pacific Railroad—the bridge over the Great Colorado River having been completed on that day and the last rail laid. Connection is also made with the Atchison, Topeka and Santa Fe, and the St. Louis and San Francisco roads. The route being on the 35th parallel is consequently free from snow in the winter.

THE contract for building the extension of the Jacksonville and Southeastern Railroad to Centralia, Ill., has been awarded to Messrs. Larkworthy, Collins & Co., of Quincy, Ill., who will push the work of construction to an early completion.

THE grading of the Jacksonville, Tampa and Key West Railroad, between Jacksonville and Palatka, Florida, is nearly completed, and track-laying will soon be commenced. Enough iron is now on hand to lay ten miles o track.

SURVEYS are now in progress for the extension of the Burlington, Cedar Rapids and Northern Railroad north from Worthington, with Bismarck as an objective point.

THE main line of the Chesapeake and Ohio Railroad now extends from Old Point Comfort, Va., to Lexington, Ky., a distance of 644 miles. This is the only route through the celebrated spring region of Virginia. Eight mahogany-finished Pullman coaches have just been added to the equipment of this road.

THE track of the New Orleans and Mississippi Valley Railroad was laid to within fifteen miles of Baton Rouge on the 10th inst., and will be completed to that point by the 1st of September.

THE line of the Bluffton and Union (Indiana) Railroad has been located from Winton to near New Pittsburgh, about six miles east of Ridgeville, and from Bluffton to Camden in Jay county.

THE track is now being laid on the Columbus, Hope and Greensburg Railroad, and it is expected that trains will be running between Hope and Greensburg by the 1st of September.

TWENTY-THREE miles of the Duluth and Iron Range Railroad, north of Agate Bay, have been graded, and track-laying will commence at an early day.

AMONG the several railroad schemes now on foot in St. Joseph, Mo., is a line known as the Des Moines, Osceola and St. Joseph, which is now in operation between Des Moines and Osceola, and will be extended from the latter point to St. Joseph. The St. Joseph and Rio Grande Railroad is also being surveyed. It is thought both the above roads will be built.

THE Pacific Coast Railroad company have in contemplation the extension of their road from Los Alamos to Santa Barbara, about eighty miles. The road is now in operation from Port Hartford, Col., to Los Alamos, sixty-four miles, having been extended from Santa Maria to that point, twenty-one and a half miles near the close of last year.

SURVEYS are now in progress for a new branch which, it is said, is to be built at once by the New York, Lake Erie and Western Railroad company, from Montclair N. J., to Morristown, a distance of twelve miles.

THE gross earnings of the Buffalo, New York and Philadelphia Railroad company are said to be at the rate of $3,000,000 per annum.

THE new station, building by the Lehigh Valley Railroad company at Wilkesbarre, is rapidly approaching completion, and will be the finest along the line of that road.

THE tunnel of the Delaware, Lackawanna and Western Railroad company at Nicholson, has been completed, and trains are running through it. The tunnel is 2,177 feet long by 21 feet high, and was commenced about one year ago.

THE freight traffic over the Philadelphia and Reading Railroad is rapidly increasing. From twenty-eight to thirty-five coal trains pass down the main line every twenty-four hours. The business on the Lebanon Valley branch is said to be heavier than it has been for many years.

At Altoona, in all the railroad shops, working time is nine hours. The nine-hour system will continue probably through the first part of the winter months, owing to the orders for new work being about completed.

PERSONAL.

CAMPBELL WALLACE has been re-appointed railroad commissioner by the Governor of Georgia.

GEORGE R. BOTTOM, cashier of the Baxter National Bank, Rutland, Vt., has been elected by the Rutland Railroad Company as register of the common and preferred stock of the company.

CHARLES CLEMENT has been elected president, J. A. Mead, treasurer, and James C. Barrett, clerk of the Rutland Railroad Company.

FRANK C. HOLLINS has been elected a director of the St. Louis, Alton and Terre Haute Railroad Company, vice Charles G. Landon.

S. B. WHITNEY has been appointed general superintendent of the Lehigh and Wilkesbarre Coal Company. Mr. Whitney is the successor of Charles Parrish, of the Wyoming and Audenreid Division.

BARNARD BROWN has been appointed assistant freight and passenger agent of the Cincinnati, New Orleans and Texas Pacific Railroad, with headquarters at Cincinnati, Ohio.

B. F. MITCHELL has been appointed freight and passenger agent of the Chesapeake, Ohio and Southwestern Railway Company, with headquarters at Louisville, Ky.

J. H. PALMER, late general freight and passenger agent of the Massachusetts Central Railroad Company, has been appointed to an important position upon the Chicago and West Michigan Railroad, and will be located at Grand Rapids, Mich.

GENERAL W. J. PALMER has resigned the presidency of the Denver and Rio Grande Railway Company.

AN inventory of the estate of the late Chester W. Chapin, filed in Springfield, Massachusetts, gives the valuation of the personal property at $1,986,000 and of the real estate at $171,800.

JAMES COOKE, president of the Cooke Locomotive Works, of Paterson, N. J., died at Bloomingdale in the Adirondacks, where he has resided for several years on account of his health. He caught a severe cold at the fire in the works in 1880, and has been consumptive ever since. He was forty-five years of age, one of the leading citizens of Paterson, and leaves a large estate.

THE physicians in attendance on Col. E. D. Frost, general manager of the Natchez, Jackson and Columbus Railroad, say that although his condition is serious, he will probably recover.

PRESIDENT ROBERTS, of the Pennsylvania Railroad Company, has left for a ten days' vacation, during which time he will visit the Catskill Mountains and Saratoga.

SAMUEL G. BLAKE, for many years a messenger in the Pennsylvania Railroad Company's main building, principally in the office of A. J. Cassatt, died at Norristown on the 8th inst., of paralysis.

INCORPORATION.

A CHARTER has been granted to the Topeka and Ottawa Railroad company with a capital of $1,000,000. The directors are: G. W. Neale, A. I. Bonebrake, John Guthrie, P. Shiras, Robert Alkenson and Joel Huntoon, of Topeka, and L. L. Sharpe, of Ottawa, Kansas.

THE Pine Creek and Susquehanna Railway company, a narrow-gauge road, was chartered at the State Department, Harrisburg, Pa., on the 10th inst. The capital is $400,000. The line extends from Pike Mills, Potter county, to Westport, Clinton county—a distance of forty miles. Among the directors are Thomas C. Platt, William C. Sheldon and George R. Blanchard.

THE Harrisburg and Southwestern Railroad company was chartered at Harrisburg, Pa., on the 10th inst., with a capital of $5,000,000. The road will be ninety miles in length, through Dauphin, Cumberland, and Franklin counties. Robert H. Sayre, of Bethlehem, Pa., is president of the company.

ARTICLES of incorporation were filed on the 8th inst. with the Secretary of State of Wisconsin, of the Princeton and Western Railway company, having $50,000 capital. The proposed road is to run from Princeton, Green Lake county, on the Chicago and Northwestern Railway, through Marquette, Adams and Juneau counties to Valley Junction, Monroe county, on the St. Paul and Omaha Railway. It is to be 75 miles in length, 25 miles to be completed this season.

ARTICLES of incorporation were filed with the State Auditor at Des Moines, Iowa, on the 6th inst. of the Chicago, Lyons and Pacific Railroad company, with a capital of $10,000,000. The object of this company is the construction of a railroad from the Mississippi River at or near Lyons, thence to the Missouri River, with branches to the northwestern and southwestern boundaries of the State. The principal place of business is to be at Lyons for the first two years, and thereafter at such place as the directors may designate. The incorporators are J. C. Root, J. W. Esery, W. P. Scott, H. B. La Rae and J. L. Brown.

THE St. Joseph, Joplin and Gulf Railroad company was recently organized at Troy, Kansas, with a capital of $2,500,000. The road will extend from Elwood, opposite St. Joseph, to Troy, thence to Joplin, and thence through Arkansas to the Gulf.

ORGANIZATION.

AT a meeting of the directors of the Richmond and Danville Railroad company, held on the 10th inst., Robert Harris, John T. Branch, A. D. Shepard and T. M. Logan resigned, and the following gentlemen were elected to fill the vacancies: George S. Scott, George F. Baker, George I. Seney and Cabron S. Brice. This, it is said, secures to the Scott-Seney syndicate complete control of the property.

AT the annual meeting of the New Brunswick Railroad company, held at St. Johns, New Brunswick, on the 3d inst., the following officers were elected: Samuel Thorne, president; the Hon. Isaac Burpee, vice-president; E. B. Burpee, general manager. J. S. Kennedy, New York, and J. Kennedy Todd, New York, with the officers above named, form the executive committee. The other directors are the Hon. Lord Elphinston, of Scotland; George Stephen, Montreal; H. Northcolt and D. Willis James, New York. The company is now operating 420 miles of road.

AT the recent annual election for directors of the Cleveland and Mahoning Railroad company, Stevenson Burke, J. H. Devereux and Charles Hickox were chosen directors for three years. The board consists of these gentlemen and E. B. Perkins, E. B. Hale, Charles Pense, Joseph Perkins, R. Hitchcock and John Tod. The directors organized by electing Stevenson Burke, president, J. H. Devereux, vice-president, E. B. Perkins, treasurer, and E. E. Poppleton, secretary.

THE directors of the Southeastern Railway company, recently elected, are: Bradley Barlow, Emmons Raymond, J. Thos. Vose, Duncan McIntyre, A. B. Chaffee, B. B. Smalley, F. A. Metcalf, C. N. Bishop, J. O'Halloran and T. A. Mackinnon.

THE Chicago, Iowa and Kansas Railroad company was organized at Topeka, Kansas, on the 5th inst., with a capital of $5,000,000. The directors are: W. W. Guthrie, Thomas J. White and George T. Bowers, of Atchison, and W. J. Ladd, E. E. Pratt, A. G. Stanwood, Henry Parkham and N. H. Stone, of Boston, Mass. The proposed route is through the counties of Marshall, Washington, Republic, Cloud, Ottawa and Saline to Salina and from thence to Belleville.

A CHARTER was filed with the Secretary of State of Kansas, on the 3d inst., of the St. Louis, Emporia and Denver Railway company. The road is to run from St. Louis to Denver, and the estimated length is 1,000 miles. The capital stock is $20,000,000. The board of directors for the first year comprises Gov. Charles Foster, of Ohio; Congressman Amos Townsend, of Ohio; Senator Warner Miller, of Herkimer, N. Y.; John D. Perry and John Scollin, of St. Louis; J. L. Pace, of Butler, Mo.; R. W. Blue, William Martindale, H. C. Cross, and C. Hood, of Kansas, and Thomas M. Nichol, of New York City.

MISCELLANEOUS.

THE Lehigh Valley road has secured entrance to Buffalo over its own tracks.

THE Chicago, St. Louis and Pittsburgh Railroad company has purchased the right of way and other franchises of the Miami Valley Railroad company, and will build the road from Piqua to Troy, in Miami county. Surveys were made, the line located, and considerable right of way secured and contracted for last year, but the company has been unable to go any further with the work up to this time. The alleged purchase by the Pan Handle is claimed to be the beginning of a new line of road from Xenia, through Troy, Piqua, and Minster to Fort Wayne.

THE National Railroad Company of Japan, incorporated with a capital of $20,000,000, under the auspices of the Japanese government, two years ago, has adopted the American system of building railroads, and is now constructing the main line which extends from Tokio to Anderson, the northern seaport of Japan, a distance of 450 miles. A part of the main line, about fifty miles in length, has already been finished, and will be open to the public this month or next. The terminus of the line is the commercial center of a province where silk culture is the principal occupation of the people. The silk raised in this province is highly esteemed in foreign markets, and is exported to America as well as Europe in large quantities every year. It is expected that the whole line will be finished within three years.

THE Lackawanna fast freight line bids fair to become one of the leading lines in the country. It has had a remarkable growth for a new organization.

DULLNESS of freight traffic has caused a suspension of 150 men in the Fort Wayne shops for an indefinite period, though it is thought that they will be needed again in six or eight weeks.

EIGHTEEN hundred men are said to be at work on the West Shore road between Kingston and Catskill village. Much trouble has been found to construct a solid and permanent road-bed just below and also above Catskill. The track is now unbroken between New York and Syracuse, and it is thought the line will be opened to the latter city early in September.

THE rapidity of construction on the main line of the Canadian Pacific Railroad in the first week of July, is without parallel in this or any other country. On Saturday, July 7th, rails were laid upon six miles of road, and in the week not less than 25 86-100 miles, exclusive of sidings, were completed—an average of about four and one-third miles per day. This is the highest rate ever attained.

BRADLEY BARLOW denies that the Southeastern Railroad has been sold to the National Construction Company of New Jersey, though he "hopes to sell the road to these parties."

THE Lehigh Valley Railroad Company have a corps of engineers at work at present, surveying and locating a line of railroad from Slatington to Port Clinton. The route lies about midway between the Schuylkill and Lehigh Railroad and the Blue Mountain.

ABOUT thirty miles of the track of the N. O. and M. V. road has been thoroughly ballasted with sand, which is obtained at the old Bonnet Carre crevasse, and which is being hauled by dirt trains to the upper and lower portions of the road. The ballasting work is going ahead rapidly, and it will catch up with the track-laying gang by the time the rails reach Baton Rouge. Section houses are now being built along the road, and every effort is being made to have the road ready for business as soon as possible after the track reaches Baton Rouge.

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ALL copy for publication in the AMERICAN RAILROAD JOURNAL, both advertisements and articles, should be mailed to reach the publishers not later than the end of the month previous to that in which it is expected to appear. There is no fear of being too early in sending, and our correspondents would oblige us by anticipating, as far as possible, the last day on which we can receive copy.

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NEW YORK, AUGUST, 1883.

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OUT OF THE FIRE.

SINCE the date of our last issue, this publication of the Phenix Company, has arisen, like the fabled bird of antiquity, from the ashes of a mighty conflagration. On the twenty-second ult. our printer's office, occupying a portion of the old Munro Building, was completely gutted by fire. Copy prepared for the compositor passed away in smoke, type was melted, and in short, the total "plant" destroyed. Fortunately the July impression had been perfected and nearly all distributed, so that, as in the case of the good man who broke his leg and thanked God 'twas not his neck, we have reason to be glad that our misfortune was not nearly so great as it would have been had it occurred a week sooner. Moreover, the lives of the sixteen noble firemen, at one time during the fire imminently endangered, were saved; and, on the whole, we can record the accident, not only without depression of mind but with cheerfulness.

Once more the AMERICAN RAILROAD JOURNAL appears in a brand-new dress, the old one being entirely gone. It provides greater comfort to the reader, and is equal in every other respect to the old. With the exception of the improvement indicated, we make no change in the appearance of the JOURNAL, which, we are proud to say, is one of the handsomest published on this side of the Atlantic. The expression of our regret is due to those who will be disappointed because of the non-appearance of matter which they expected to see in the present number. Our readers will excuse the delay of a few days, necessitated by the fire, and which the utmost diligence on the part of publishers, editors and printers could not prevent. In the course of a short time, all articles intended for publication which were destroyed in the blaze will be reproduced, as several have been preparatory to the present issue.

CIVIL SERVICE REFORM.

THE National Civil-Service Reform League has issued a pamphlet entitled "The Four Years' Term, or Rotation in Office," by FREDERICK W. WHITRIDGE, which we judge is distributed gratuitously to the different journals, one having been received at this office.

In the course of a year many pamphlets on as many different subjects find their way to our editorial desk, the majority of which find a rapid transit to the editorial waste basket. We have, however, deemed this subject of so much importance, and the modification of the present law so great a necessity, that we have carefully read the pamphlet in question, and freely and fully subscribe to the statements there made. The document is certainly a timely one, for we judge that many like ourselves had forgotten or were ignorant of the existence of such a law, as the law of May 15, 1820, limiting the terms of certain officers to four years.

In regard to the movement being timely, there can be no question. All movements in the direction of right are always timely. The question of expediency is never to be thought of in a matter where right is clearly defined. It is man's imperative duty to do right, to labor for the right, though the heavens fall. When a man does what is right, and labors for the right, he can afford to leave results where they belong—with the great ruler of the universe.

We well remember reading in an autograph album over the signature of WENDELL PHILLIPS, the words, "Peace if possible; Justice at any rate." The impression those words made is with us to-day, and we hail any movement as timely that has for its object equal justice for all.

The subject of Civil Service Reform is one that we have been desirous of seeing agitated far more earnestly than the parties having it in charge have seemed able to do. For many years the movement had the appearance of a kid glove affair. A few men could get up and lecture about it, and a few others could write magazine articles, which read like essays about theories that could not be reduced to practice. To-day this is all changed, and the kid glove handling and theorizing have become things of the past in the passage of the PENDLETON bill, which is a fact of the present. We now realize that men are awake and in earnest regarding this movement.

The PENDLETON bill is but a first step as it were, in this great reform, which, if carried to a successful completion, will result in giving us an honest administration of government affairs. This is certainly a reform in which all business men are largely interested, and in the prosecution of it, the League should not be afraid of calling upon every business man to become a member, and to contribute freely of his means for its support.

Those of us who are brought in contact with the men intrusted with the management of government affairs, cannot help feeling that many are placed in their positions because they must be fed, and their influential friends cannot find food for them anywhere else. We have nothing to say about the buying power of patronage in the securing of voters, because we know that voters can be bought in almost any number, from a glass of beer up to a given amount of dollars. We do not expect that the obtaining of a civil service reform will do away with all the corruption attending the election of officers, but it will do away with a large part of it, and a rigorous law against bribery at elections vigorously executed may accomplish the rest.

We do not hesitate in inviting the readers of this Journal to give this reform their serious attention, and so far as in them lies, all the material help they can.

THE surveying party of the New York, Texas and Mexican road, locating a line from Rosenberg to Houston, reached the outskirts of the city August 7.

STRIKES.

WITHIN a few a days three strikes were in operation in New York City at the same time. That of the telegraphers commanded a good deal of public sympathy, and that of the "Progressive Union" cigar-makers, hardly any sympathy at all. The cloak-makers' strike was simply a refusal to work and starve to death at the same time. The fact that the cloak-makers could not live on the wages they were getting, was so patent to employer as well as to employé, that the strike was soon brought to an end, by the employers acceding to the demands made upon them. The other two strikes, so far, have not been successful. The "Progressive Union" has had to retract its demands, or meet with a lockout on the part of the manufacturers. The telegraphers have not yet brought the Western Union to terms, and it is claimed that the service performed by the Company is not much inferior to what it was before the strike. We are not in a position either to endorse or deny this claim. We think, however, that we are in a position to dicuss the right and wrong of strikes.

In the first place, we must ask the reason why a body of men strike. In the beginning of strikes, years back, the reason was given that it was labor protesting against the oppressive hand of capital. This was a very high sounding reason, and as capitalists were in the minority and laborers in the majority, politicians clamoring for votes, and newspapers dying for circulation were found, who gladly sided with the strikers, for the sake of winning their friendship. Such politicians and newspapers were not the true friends of the laboring man. The true friends were those who opposed them in their strikes, and they who oppose them to-day are truer, better friends than are the parties who pat them on the back. It is only needed to look at the different reasons for strikes as compared with the one reason of years ago.

From the reason then given, of labor protecting itself against the encroachments of capital, have grown all the other reasons. If men could combine and strike for that, they could combine and strike for other reasons,

The "Progressive Union" made a strike in a cigar factory because some members of the "International Union" were employed. There was no dissatisfaction as to hours of labor, quality or kind of work, or of wages paid. The only question was, that others than members of the "Progressive Union" were employed. Because the "International" was not the "Progressive," the former must go or the latter would organize a strike.

The other day there was a strike in a newspaper office in San Francisco. The *Call* employed some twenty-five or thirty printers, of whom only a part belonged to the trades-union. Nine of these printers did not belong, and would not join the trades-union. These nine men were

good workmen, and not objectionable in any way, except that they would not unite with the trades-union. The great question of what was to be done was solemnly discussed, and the conclusion reached that the trades-union men should "strike" for the dismissal of the non-union men, and they struck.

Strikes do not end here. They began with the cry of labor against capital; they have continued as explained above until it is now labor against labor, as well as labor against capital. They have gone farther. There are people living who remember the boycotting of grocery stores, for selling yeast cakes made by a firm whose hands had left them in an unsuccessful strike. It is not many months ago that liquor saloons were boycotted, unless they declined to sell the beer made by an obnoxious brewer. This striking business has gone still farther in manufacturers forming a union among themselves, so that when the hands strike in one shop they call a meeting and order a lockout in all the shops, until the strikers give in.

We think we have cited enough instances to show that when men can strike for one reason, it is very easy to find other reasons calling for the same result. We now discuss the question whether any body of men have the right to strike. We do not wish to discuss this question of right by making comparisons, for such are odious and do not prove anything.

It is now well established that civilized men possess two kinds of rights—natural rights and civil rights. The natural rights are common to all men, and can be classed under three heads; life, liberty, and the pursuit of happiness. But natural rights are not sufficient for men. Take a man and place him on the most prolific island, with everything to charm the eye and gratify the senses. He has all his natural rights—life, liberty, and the pursuit of happiness. But what are these worth to him if he is the only human being on the island? He will see many days when death will be preferable to life, and a dungeon preferable to liberty. As for the pursuit of happiness, he will look upon that as a chimera. He finds that to enjoy his natural rights he must have the society of his kind. He enters the society of his kind, and finds the advantages he did not have when alone. These advantages of protection, association, mutual helpfulness, are called civil rights. Now it is self-evident that in the attainment of civil rights, men must sacrifice to a certain extent the free exercise of their natural rights. A man has a natural right to his life, but the society of which he is a member has a civil right to that life for its protection, the same as he has a civil right in the exchange of his natural right to be protected by society.

A man has a natural right to liberty, but when he becomes a part of society, he exchanges this in part for the civil right of being protected from the natural right of liberty in others encroaching upon him. In this sacrifice of the natural right of liberty for his own protection, he is protecting others from an encroachment by himself on their right. He when alone learned that the pursuit of happiness was a chimera, and for the gratification of this natural right he has willed to forego in part his other natural rights, and find in good government and society that which could not be found when he was alone. Now every man entering society makes a compact, either open or implied, that he will surrender his natural rights in part, in exchange for the civil rights imparted by society. In doing this, he acknowledges that as men are constituted to-day, civil rights are absolutely necessary to the enjoyment of life, liberty and happiness,

That which he has entered society to receive, he must do his part to give. He stands as one part of a great whole. He has no right to cause suffering or distress. His mission is to contribute his quota to the life, liberty and happiness of the whole. Now apply this to strikers. At twelve o'clock noon, Washington time, a body of men leave their instruments with messages half sent, and the whole country is defrauded for a time of telegraphic communication. How many human hearts were wrung with anguish because they did not receive the expected messages from the sick and dying. How many business men were paralyzed because they could not hear from other centers of trade. These telegraph operators had a natural right to strike if they had not exchanged their natural right for the civil right of protection, but having made this exchange, they had no right to break their compact and entail needless suffering on that portion of society which happened then to be at their mercy. They were false to the community in which they lived, and which had protected them from the encroachments of others.

We are not bearing down on the telegraph operators, for we have no sympathy with watering stock and working men on small pay in order to pay dividends on watered stock, but we take the telegraph operators as an illustration, because they claim to be of better blood and higher intelligence than most classes that engage in strikes. The maxim in society is, that "no man has a right to do as he pleases, except as he pleases to do right," and it certainly is not right to cause suffering to innocent persons for the attainment of our own selfish purposes. These operators were probably not getting rich as fast as their employers, but they were not starving to death. As long as they were fed, clothed and housed, they had all they could claim, unless their own brains could show them the way to get more. Study this question of right from any standpoint, and but one conclusion can be reached, and that is that no man or body of men can rightly cause suffering for personal ends.

If this is true as between the strikers and the general

public, how much truer it must be between the strikers and their fellow laborers who do not wish to strike. If a man does not wish to work, let him withdraw, but do not let him force others to quit work, who would rather eat bread honestly earned than live in idleness on turkey given at the hand of charity. The suffering caused the outside public finds its counterpart in the homes of the poor strikers, where the wife and children have to go hungry to bed, while the lord and master is swelling around like some overgrown frog in a corner bar-room, thinking he is a great man when he refuses to take half a loaf because he cannot get a whole one.

We seriously think that the time has come when this question of strikes must be met in earnest. The railroads in times past have suffered terribly from strikes. State governments have been menaced, much money has been expended for damages, private enterprises crippled, men have been murdered, families compelled to suffer, criminals made, and a host of other crimes, calamities and misfortunes forced upon communities as the result of strikes. We do not mean to state that the strikers have not their grievances, but we do affirm as our belief, that they take the worst possible way to get redress.

We hope that very soon a better way shall be found; but if not, then that the strong arm of the law shall interpose and protect all classes.

We think, however, that all classes can be protected without the intervention of the Government. In the case of the strike of the Cigar Makers' Progressive Union, because one factory employed non-union hands, the action of the United Cigar Manufacturers' Association was very decided. They ordered a lock-out to offset the strike, and the consequence was that the strikers found themselves in the street, with every factory door of the Manufacturers' Association closed against them. It was not long before the strikers came to terms, and signed an agreement to work with non-union men. But in this lock-out great injustice was done, because it stopped the wages of poor men and women who were willing to work, and must work or starve. We think, therefore, that a fairer way to all concerned is, not to make a lock-out, because this is just as reprehensible as a strike, but to make a rule that when men strike they shall be discharged, not to be employed again. This does not take away the right every man has of getting the most for his services, but prevents him from dragging into idleness others who are contented to work. Such a course would prevent lock-outs, by which men and women are, without fault of their own, obliged to go hungry to bed. In the words of WENDELL PHILLIPS, "Let us have peace if possible, justice at any rate."

AN application has been received at this office for twenty-eight volumes of the AMERICAN RAILROAD JOURNAL, of dates ranging from 1831 to within about thirty years of its establishment. We are not able to spare these precious volumes from our shelves, containing as they do, a complete history of railroad development in this country, in years when the literature of the subject had no existence outside of these columns, or when the papers devoted to this most interesting branch of industrial information were exceedingly few. Throughout the more than half century during which the JOURNAL has been published, it has been eagerly read by the leading business men of the civilized world; and continues to be an authority on the subjects with which it deals, not the less valued by its countless readers because of the keen competition of this enterprising age. We confidently invite the comparison of current issues of the paper with those of the past, and of our contemporaries; and assure our friends that money, industry and journalistic ability will continue to be engaged in the future, as now and in the long past, to maintain the AMERICAN RAILROAD JOURNAL as a model paper of its class.

A FUNDAMENTAL improvement is reported from the works of the West Shore Railroad, but one which will not be found lasting, we fear, and while it endures, is practicable only in the case of a limited number of subjects. We refer to the ingenious way by means of which the contractors on the lines named, identify the Italians in their employment. The "linkéd sweetness long drawn out" of Italian patronymics, so suggestive of Southern indolence and leisure, possesses no such charms in the ears of said contractors as leads them to master the difficulties presented in their memorizing and pronunciation. They therefore substitute numbers for names in their identification of the Italians in their employment, these numbers being conspicuously painted on the most spacious portion of the trousers worn by the men. By the means stated, the history of each day's work is correctly ascertained, and the fear of arithmetical obliteration being ever before his eyes, the wary Italian avoids indulgence in excessive repose. There is no question as to the value of the practice described, in the education of the Italian laborer to a sprightly activity, and in its convenience to his employers; but, we opine, a difficulty precluding its possibility will arise at such time as the said Italian has developed a proper appreciation of his dignity as one of the sovereigns of the United States. The ignominy of being marked in a place sacred, even in the case of the convict's garb, from the desecration wrought by the painter's art, can only be borne by Italians in their undeveloped condition as Americans in embryo, so to speak. Who would venture upon painting the breeches of a gang of imperial Irish laborers, our future lawgivers and statesmen?

Numbered unmentionables must go.

SEVEN miles of track of the Florida Southern Railroad have been laid south of Ocala, and twelve miles of grading completed. There are 200 hands at work grading and 100 engaged in cutting cross ties, while sixty are laying track and finishing. The company is making strenuous efforts to increase its working force, in order to be in Leesburg by the 1st of November next.

RAILROAD MEDICAL SERVICE.

(*Continued.*)

BY S. S. HERRICK, M.D.

SECRETARY BOARD OF HEALTH, STATE OF LOUSIANA.

ITALY.

FOR information upon the railroad medical service of the Kingdom of Italy I am indebted chiefly to McWalter B. Noyes, Esq., the U. S. Consul at Venice; through whom copious materials, both manuscript and printed, have been furnished by the president of the Alta Italian Railway, Sig. Carl Alessandro B. Blumenthal. The following therefore relates specially to the railway system of Northern Italy.

Its medical service is under charge of twelve officers, styled sanitary inspectors, who reside at the most important points of the lines, as Turin, Alessandria, Milan, Verona, Udine, Bologna, Lucca and Savona. Their principal duties are as follows: to make physical examination of all applicants for employment; whenever employés are injured or fall sick, these officers have to inquire into the nature and gravity of the affection, and to report particularly when they find it expedient to grant leave of absence or to make final discharge from service; they watch over the course of the medical service, study its wants and suggest such improvements as they judge conducive to its perfection; they inspect quarterly the relief-chests distributed along the lines, provide for their replenishing, and recommend such changes as they find useful; they visit localities where epidemic or contagious diseases prevail, and report accordingly, advising measures suitable to the place and occasion. These officers are employed and paid by the railroad corporation.

Here it is to be noted that the employés of the company are organized into a mutual relief association (*Consorzio di Mutuo Soccorso*), for the purpose of affording medical relief and pecuniary assistance to members in case of sickness. This association employs physicians (*Medici Consorziali*) who reside in the towns and villages along the lines, most of whom are also in the service of their municipalities for attendance upon indigent cases. In the larger towns several physicians are under engagement to the *Consorzio*, and they number 614 in all. Most of them are paid fixed annual salaries by the *Consorzio*, and besides receive free passes from the railroad company for limited distances. Some receive fees according to service, in place of fixed salaries, and some both fees and salaries.

It is the duty of these physicians to wait upon all members in sickness or injury from accident, and in the latter case they must remain at the scene of disaster as long as their services are needed. At such times the telegraph is entirely at their disposal for ordering whatever is needed. They are required to keep a register of all cases treated and report the same to the *Consorzio* for the purpose of adjusting the expenses of the service; while they are under the general supervision of the sanitary inspectors of the company in their professional relations. In localities remote from a sanitary inspector of the company, the association physicians are required to report cases under treatment, with diagnosis and prognosis, in the same manner as the company's own medical officer.

Only those employés whose annual pay is less than 1,200 *lire* ($240) are entitled to membership in the *Consorzio*, the whole number of members being about 25,000. In case of injury from casualties of traffic, the company provides for those under higher salaries, being advised in such instances by the sanitary inspectors.

Whenever an employé is disabled by disorderly conduct, vice or wounds received in brawls, no pecuniary aid is granted, but he receives medical treatment. Drunkenness is less common than in colder climates, and rarely interrupts work.

The families of employés are not entitled to relief, either medical or pecuniary, from the company nor from the *Consorzio*.

The available funds of the *Consorzio* are composed: 1. Of a deduction of one per cent. of the pay of those who work for fixed monthly wages, and one-and-a-half per cent. of those who are paid by the day (such as workmen in the shops, about 5,000 in all); 2. Of a contribution by the railroad company of a sum equal to one-half the amount of these deductions; 3. Of all the fines imposed on the employés; 4. Of half the amount of deductions from pay for loss of time through sickness and leave of absence. These several sources yielded a revenue, during the year 1881, of 320,818 *lire* ($64,163.60).

The railroad company of Northern Italy has no hospitals of its own, but has special contracts with civil hospitals. The average daily expense of maintenance and treatment is 1.60 *lire* (32 cents), paid by the employé himself. The hospital sends its bills to the *Consorzio*, which reimburses itself by deductions from the wages of those treated.

This association is furnished by the railroad company with 200 relief-chests, which contain medicines, surgical instruments, and such dressings as would be needed in case of disaster upon the road. These boxes are distributed among the most important stations, and particularly wherever there is a reserve locomotive. Formerly they were carried in passenger trains, but it is found better to send the reserve locomotive to the scene of accident, carrying a relief-box, physician and assistants, so as to render the first relief upon the spot.

All employés in every branch of service are subjected to physical examination before engagement by the company. The medical examinations are conducted according to prescribed rules, and are entrusted to a commission composed of sanitary inspectors, assisted by a consulting ophthalmic surgeon. A careful examination is made of the visual sense, and particular pains are taken to detect color-blindness, which, however, is rarely found in Italy.

The sanitary inspectors and physicians of the relief association are charged with the sanitary supervision of the buildings, grounds, carriages, wells, cisterns, etc., belonging to the company; but practically this duty is neglected, except in time of epidemic disease, when the rules are strictly enforced. The hygienic condition of employés also is not well observed, except in case of sickness, when the attention of the medical attendant is specially directed to the subject.

There is also a Pension Fund (*Cassa Pensioni*), which was established in 1862, with 22,000 contributing members and a capital of about 24,000,000 *lire*. Its object is to grant stipends to employés disabled by sickness, injury or old age, and in case of death to their widows and their orphan

children under eighteen years of age. While independent of the *Consorzio*, before mentioned, it is supplementary, and they are entirely in harmony. It is sustained by deductions from the pay of contributing members, and an equal amount donated by the railroad company, besides some other sources of revenue. Further particulars of this association and of the *Consorzio di Mutuo Soccorso* are reserved for another article.

With regard to the transportation of live animals, they are loaded and unloaded by the consignors and consignees at their own risk. The animals are divided into five classes, and an ordinary wagon is limited to seven of the first class, eleven of the second and twenty of the third. Of the fourth and fifth classes, the shipper can load to the full capacity of the wagon. These rules, however, do not apply to trains running at low rate of speed. The company acknowledges no responsibility for damage to animals *in transitu*, unless the same is caused by disaster to the train, from collision, derailment or the like. The company makes no provision for food or water to be supplied to the animals *in transitu*; but if they are neglected on arrival at their destination, they are provided for by the company at the expense of the owners. As all ordinary risks fall upon the shippers, attendants are given passage upon the same wagons with the animals, for their greater security. In transportation of fowls, the shipper is required to place a vessel of water in every box which confines them, and the rules forbid these boxes to be overcrowded.

I have also received a report from the United States Consul at Genoa, consisting of brief answers to my list of inquiries. It is apparent that the medical service of Italian railways under his observation is less elaborate than that of the system of roads in northern Italy.

Mr. Francis reports that the railroad companies employ medical officers, at their own cost, who attend employés in ordinary sickness, as well as in case of injury, making no exception when the same is caused by drunkenness, brawls or venereal infection. No medical attention is provided for their families.

No contributions or deductions from pay are required for medical attendance, and no mention is made of benevolent associations among the employés. It is stated, however, that a percentage of wages is retained to sustain a fund for affording pensions to the families of employés after their death in service, or compensation to themselves in case of injury.

[TO BE CONTINUED.]

Recent Legal Decisions.

WALKING FROM A TRAIN WHILE ASLEEP.

A QUESTION, interesting to those holding accident policies of insurance, was recently decided by the Supreme Court of Wisconsin (Scheiderer vs. Travelers' Insurance Company). The action was brought against the company by a policy holder, who was traveling on a train of cars at the time of the accident. In his complaint he says that he fell asleep from weariness and the motion of the cars, and when it was quite dark, "and while he was in a dazed and unconscious condition of mind, and not knowing or realizing what he was doing, he involuntarily arose from his seat and walked unconsciously to the platform of the car, and without fault on his part fell therefrom to the ground," and received the injury complained of. The Court below held that no cause of action was stated, and dismissed the complaint. On appeal this decision was reversed. The Court, in the opinion, said: "The allegations of the complaint must be taken as true on demurrer, and it must be accepted as true that while he was in a dazed and unconscious condition of mind and not knowing or realizing what he was doing, the plaintiff involuntarily arose and walked unconsciously to the platform of the car, and, without fault on his part, fell to the ground. These are the strongest words that could be used to negative self-infliction, design or voluntary exposure, which are the only conditions (material to this case) to exempt the company from liability. From these allegations it is evident that the plaintiff was as irresponsible for his actions and conduct as a human being could be from any possible cause, and that is sufficient."

LIABILITY FOR LOSS ON RAILROADS.

In Leo vs. St. Paul, Minneapolis and Manitoba Railroad Company, the plaintiff shipped a car load of stoves at Chicago to be delivered at Moorhead, in Minnesota, and the transportation was necessarily made over several distinct railroads. When the car containing the stoves reached St. Paul, the defendant railroad received the car and billed it through to Moorhead without inspecting its contents. When the car reached its destination it was opened, and the stoves were found badly broken. The Supreme Court of Minnesota in holding the railroad liable said: "Where goods have been transported by several successive carriers, and it appears that they were in good condition when delivered to the first carrier, the jury may presume, in the absence of evidence to the contrary, that the goods reached the hands of the last carrier in the same condition as when delivered to the first carrier. The rule is not changed by the fact that the last carrier, instead of transferring the goods, transported them over its line in the foreign car in which it received them. We can see no distinction in this respect between goods transported by the car load in a locked car, and goods transported in a package mailed or otherwise fastened up. Of course we are not now speaking of cars in transit from a foreign country in bond and under the seal of the United States Custom House authorities."

STATEMENTS HELD OFFICIAL.

In Curry vs. Supervisors of Decatur County, the Supreme Court of Iowa decided that a public speech made by the president of a railroad company to the voters of a township, inducing them to grant a loan for construction purposes, may have very important legal bearings. It seems that the company proposed to run its road through the township of Franklin, in Decatur county, and made a request upon the township to vote a five per cent. tax to aid in constructing the road. To influence the vote the president of the road addressed the voters at a public meeting, and informed them that the road was to be laid as the surveys then ran. The voters authorized the tax, but the company altered the line of road. The plaintiff in this suit sought an injunction against the collection of the tax, which the Court granted. In its opinion the Court said: "We do not find from the evidence that the president made a representation in his speech which he

knew to be false, for the purpose of influencing voters to authorize the tax. Whether a party thus misrepresenting a material fact knew it to be false, or made the assertion without knowing whether it were true or false, is wholly immaterial; for the affirmation of what one does not know or believe to be true is equally, in morals and law, as unjustifiable as the affirmation of what is known to be positively false; and even if the party innocently misrepresents a material fact it is equally conclusive, for it operates as a surprise and imposition upon the other party."

RAILROAD BONDS.

In the Court of Appeals of Kentucky the case of Eminence vs. Grassar's executors presented another question as to the validity of railroad bonds. These bonds had been authorized by the town of Eminence, in Kentucky, and were issued in aid of the construction of a railroad. They were delivered to the company, who disposed of them to private purchasers. The recitals in the bonds, if true, were sufficient to show that the bonds had been issued by the proper authority and in due form of law. The town attached the bonds in suit because some of the forms of law had not been complied with, but the Court held the bonds valid in the hands of a purchaser in good faith. The Court, in its opinion, said: "Good faith demanded of the taxpayers and officials of Eminence, who were the agents of the taxpayers and acting for them, that they should have suggested the defects of proceedings, if any existed, instead of using language on the face of the bonds which implied that no such defects existed." And the recitals constituted what the Court termed an equitable estoppel—that is, that the town ought not in equity to be heard to impeach the validity of that which by the recitals was said to be valid.

Pneumatic Tubes for Postal Business.

THE scheme to establish a pneumatic tube four inches in diameter between New York and Chicago challenges public interest. Small pneumatic tubes to convey messages for short distances have become almost indispensable in certain places, and great advantage is expected to result from the establishment of connection by pneumatic tubes between the Western Union building and the branch telegraph office in Twenty-third street. Large tubes have also been used in London and Paris with satisfactory results for several years, the tube two and a half feet in diameter which was laid in the former city in 1861 having conveyed a carriage weighing 700 pounds at the rate of thirty miles an hour; but the tube was only a quarter of a mile long. It is uncertain whether the pneumatic system can be profitably worked at so great a distance as that from New York to Chicago, but the experiment is likely to be tried, it is said. As pneumatic tubes four feet and a half in diameter and several miles long are now in use in London, it may be worth while to repeat a suggestion made by us two or three years ago, that pneumatic tubes be used to convey letters between the postal stations in New York city. The time of delivery would be greatly reduced were the suggestion adopted.—*Mail and Express.*

GIVE a boy address and accomplishments, and you give him the mastery of palaces and fortunes wherever he goes. He has not the trouble of earning or owning them; they solicit him to enter and possess.—*Emerson.*

Communications.

COMMUNICATIONS are solicited for this department on all subjects pertaining to Railroads, Steam Navigation, Machinery, Manufacturers, etc. No attention will be paid to communications unless the name and address of the writer is furnished us, though if desired, they will be withheld from publication. We assume no responsibility for statements made by correspondents, and we do not necessarily endorse ideas advanced by them. Under these conditions we think it of value to our readers to devote a liberal space to the free discussion by others—whose opinions may be at variance with our own—of subjects pertinent to this department of the AMERICAN RAILROAD JOURNAL.

NEW YORK, August 8, 1883.

American Railroad Journal, New York:

While on a recent Southern trip, the writer was pleased to notice so many signs of enterprise and prosperity on all sides. Even the careless traveler cannot fail to observe the spirit of improvement which seems to have taken hold of business, and a thoughtful mind will seek to explain, to his own satisfaction at least, the reason or reasons—for there are certainly many contributing to this awakening of commerce—of this trade revival. It is plain to be seen that there exists in many parts of the South a healthful competition among all classes, and we know of no other way by which the grand resources of the South can be better brought out and exhibited to the world, than by this strife and commercial warfare among her own citizens. That the South is rich, no one will or can deny; rich by nature, rich by tradition and associations, rich in prospective values, and richer still in the grand possibilities in store for her, when her mines, her forests, her fields and her rivers are touched by the magic hand of commerce. It has been said that "the South has a great future before her." There is nothing that will hasten the coming of the "New South" more, or in fact so much, as the Railways which cover her, and which are being rapidly extended from year to year.

To say that the railways are assisting to bring out these results, is perhaps doing scant justice to them. They can justly claim to be the *leaders* of this grand movement, and whatever their objects or motives are, whether power, glory or gain, the country should say *amen* to their intentions and plans. For, judging them by results, according to the sacred rule, "By their fruits ye shall know them," they are accomplishing great good, and are therefore entitled to the credit of it. In other lands it has been found that to civilize a country—which is the modern term for conquering or possessing it—the locomotive is a far swifter agency of civilization than any other; other agencies, other forces and other influences always follow.

In condemning the heads of these great railway systems—and many of us find great happiness in so doing—it should be borne in mind that they (the "heads") represent but *one* in a vast army; the voting power extends clear along the line, though subject, of course, on all important points, to the one ruling mind; and while the machinery, as a whole, must move according to the instructions of the "chief," yet it is to his interest and to the interests of all, to serve the public to the best of their ability.

The law of competition, which in other branches of trade prevents prices from being made too burdensome to the people, operates here also, and this factor alone would serve to repress any men, or set of men, from per-

manently fastening impositions upon the public—they might do it for a time, but in the long run, after public opinion is once aroused, the "right must gain" the day.

It is not to be supposed, however, that good grounds do not exist in many cases, justifying censure and complaint. But they are the *exceptions*, and not the rule. Here and there the laws of Nature seem to bear heavily upon certain things, and even *persons* complain at times when their health or worldly affairs seem to be disjointed. It is recognized, however, even in this skeptical age, that Nature's laws, though arbitrary, are always just. It is hardly to be expected that some one will not come to the front, from time to time, claiming to be able to improve and modify them to advantage. We recall the reply made by one of our well-known American orators (who uses his "silver tongue" for divers objects, and at a profit, which he has a perfect right to do), when asked by one who believed that the world was modeled upon a Divine plan, to mention one single way by which Her laws could be improved upon, replied that he would make health catching instead of disease. Had the eloquent gentleman unfolded his entire theory of a universe and the manner in which he would have it governed, probably none of his hearers would have cared to have this feature changed, if the change was conditioned upon a substitution of his full plan; inasmuch as in the "modern plan" contagious diseases, ending in death, might prove to be a happy relief.

We have only time to point to a single road as an illustration of this activity observable throughout the "New South." The main line of the Chesapeake and Ohio Railroad extends from Lexington, Ky., to Newport News, Va., a distance of 644 miles. It in turn forms but a single link in a larger system, whose tables and schedules are arranged to fit in those "notches" which an interchange of business and traffic demands. Newport News is the "Ocean outlet" of this road, and is where it finds good grounds for competing for a portion of the foreign trade.

This road has constructed at this point a giant warehouse, or more properly speaking, a merchandise wharf, 800 feet long. It would be difficult to match this pier, and certainly but few places, if any, can boast of a better one. In size, strength of construction and general arrangement, it seems to be all that can be desired, and in connection with the other piers and warehouses for the accommodation of freight—constructed and in course of construction—appears to be able to take care of whatever demands a growing traffic may require of it. The evidence of growth which one here and elsewhere sees, should convince even the "croakers" that the builders repose the greatest confidence in the future of this road. We must confess that it seems somewhat strange to find large steamers here receiving their cargoes for distant ports, for at present the eye can only see the road and its various buildings. Newport News, however, is an established place, appearances notwithstanding. The merchant is accustomed to frequently superscribe his envelope to a foreign correspondent, "via Newport News," thus dissipating whatever doubt he may have of its existence. It has been claimed, and the papers have made the announcement to the world, that they are calculating to make it a serious rival to New York; things have been fashioned for such a competition; at any rate, freight can certainly be handled here in the quickest and least expensive manner. The land round about, so we were told, ten miles along the water front and about five miles back, has been bought up by the company, and towns and cities are expected to spring up at its bidding: "Corner lots for sale at fair prices?" The germs are here, and if anything can develop them, an enterprising road is the power to do it. Mr. C. P. Huntington is the head of this system. Such is the way by which men "cast in large moulds" spread themselves over this great country. It is rare, however, for men who plan these great works, or in fact any great enterprise, in which the world has an interest, to live to see the full fruition of their aims, for the span of life is too narrow to permit the directing hand to guide its project through to the end. This "stopping off point" does not necessarily depend upon death, for in this fast age, where each one seems to be fighting the world—mankind and their forces, all leagued against him—the *limit* is reached when least expected, and tired nature demands a rest. To disregard the summons, means death,—and yet how many have, during the past, signed their own death-warrant in this way, and others "of a wiser generation," unwilling to see the finger of Fate, are pursuing the same course.

There is one more point to which attention might be drawn, which is that the "New South" is fast becoming the "garden" for the Northern markets. If any one doubts this, let him take a trip over the Old Dominion Line, and see the vast quantities of produce and "small fruits" being carried to the New York markets, there to be distributed to the hungry districts, far and near. If further proof is wanted, ask your Long Island, New Jersey and Connecticut farmers how this stream of southern produce is affecting them. They will probably tell you that every year this competition from the South is becoming stronger, and that the "margins" can not be counted on with the same assurance now, as in former years. The cheap rates for transportation by water are largely, if not altogether, chargeable for this condition of things, and the farmers are taking full advantage of them, both to their own profit and the profit of the steamship companies.

When these favorable freight rates are put before us, we can understand "why farming at a distance pays." These same rates, if given to a city expressman for carrying goods across the city would soon bankrupt him, he would claim, and tend to make him apprehensive for his chances, both in this world and the next.

You will doubtless be glad to learn that your JOURNAL, under its new administration, is making a very favorable impression among railway men, and I have found that the liberal way in which it is now managed is fully appreciated by them. With best wishes for the future of the JOURNAL, I remain, Yours truly,

HOWARD BARNES.

A WRITER in *The Century Magazine* says: "Who can estimate the value of the work petroleum has done in twenty-three years for intelligence, culture and the household virtues? It has made the evenings bright and cheerful in millions of homes. The luminous lamp invites to study and reading, to social games and music, to good conversation, to wit and merriment. In a word, it is a powerful force in the advancement of civilization—a force which the social scientists, who have so much to say about railroads and electricity, rarely take into their account of the world's progress."

Chicago, Rock Island and Pacific Railway.

THE earnings of the Chicago, Rock Island and Pacific Railway Company for the years ending March 31, 1882 and 1883, were as follows:—

	1882.	1883.
From passengers	$2,853,331 18	$3,333,069 30
From freight	9,678,097 13	7,928,236 50
From mail	215,216 42	203,344 20
From express	140,400 00	142,288 30
From rents, interests, etc	260.527 36	441,025 49
From car mileage	97,038 15	129,261 59
From telegraph lines	13,032 86	12,677 53
Total earnings	$13,266,643 10	$12,189,902 81
Expenses, viz:—		
General office, salaries, etc	$189,801 45	$191,147 85
Legal expenses	40,707 52	40,109 65
Books, printing and stationery	57,633 28	62,567 29
Outside agencies and advertising	255,348 87	345,709 39
Agents and station service	812,201 81	872,734 75
Station supplies	90,838 89	89,884 64
Telegraph expenses	117,709 57	121,142 68
Water supply	70,495 38	59,589 00
Repairs of engines and tenders	378,798 40	370,758 92
Engineers, firemen and wipers	648,596 76	629,826 77
Fuel for Locomotives	700,167 34	664,652 37
Oil, tallow and waste	53,349 95	46,119 86
Repairs passenger cars	104,277 56	152,638 52
Passenger train service	121,038 94	142,454 11
Passenger train supplies	21,154 51	23,042 94
Passenger car mileage	2,935 03	12,677 16
Dining car expenses	72,737 27	93,161 50
Repairs freight cars	554,618 99	543,169 78
Freight train service	291,202 96	267,618 61
Freight train supplies	43,597 99	40,911 91
Freight car mileage	192,956 64	136,840 92
Renewal of rails	210,061 24	121,703 78
Renewal of ties	202,043 66	203,316 10
Repairs of roadway and track	948,612 01	946,299 68
Repairs fences, crossings, etc	45,351 88	46,233 34
Repairs bridges, culverts, etc	244,126 08	239,349 32
Repairs of buildings and fixtures	265,195 35	106,759 64
Loss and damage of goods and baggage	37,192 19	30,135 10
Injuries to persons	66,700 12	51,652 28
Cattle killed and damage to property	59,049 68	31,855 00
Contingent accounts	91,475 45	68,054 90
Tax account	332,795 79	356,689 60
Total expense	$7,332,862 57	$7,109,816 38
Net earnings	$5,943,780 53	$5,080,086 43
Balance from previous year	238,201 02	290,084 89
Sale of bonds held by the sinking fund	13,200 00	.....
Receipts from Land Department	650,000 00	560,000 00
Total net income	$6,845,181 55	$5,930,171 32
Disbursed as follows:—		
Four quarterly dividends of 1¾ per cent. each	$2,937,186 00	$2,937,186 00
Interest on Chicago and Southwestern bonds	350,000 00	350,000 00
Interest on U. S. 4 per cent. bonds	600,000 00	600,000 00
Rental Hannibal and St. Joseph Railroad	37,568 28	38,153 04
Rental Keokuk and Des Moines Railroad	165,025 26	141,209 70
Rental Peoria and Bureau Valley Railroad	125,000 00	125,000 00
Tolls paid Missouri River Bridge Co	125,317 12	145,595 40
Addition and improvement account	2,215,000 00	1,300,000 00
Balance, March 31	290,084 89	291,027 18
Total as above	$6,845,181 55	$5,930,171 32

During the fiscal year ending March 31, 1881, the gross earnings were: From passengers, $2,500,135.22; from freight, $8,690,480,71; from mail, $188,913.96; from express, $133,393.97; from rents, interest, etc., $341,797,53; from car mileage, $92,362.74; from telegraph lines, $9,824.15—total, $11,956,907.64; the expenses during the same time (including $288,672.82 for taxes) were $6,629,955.16, and the net earnings, $5,326,952.48.

Compared with the year 1880–'81, the gross earnings of 1881–'82 show an increase of $1,309,735.46, with an increase in expenses of $692,907.41, making the increase in net earnings $616,828.05. Comparing in like manner the business of 1882–'83 with that of 1881–'82 shows a decrease in gross earnings of $1,076,740.29, with a decrease in expenses of $213,046.19, making the decrease in net earnings $863,694.10. The percentage of expenses to gross earnings were: In 1881, 55.45; in 1882, 55.20; in 1883, 58.33.

During the year ending March 31, 1882, the mileage of roads owned by the company was increased 26.4 miles by the completion of the river line from Davenport to Muscatine, making a total of 1,381 miles operated at the close of that year—the average mileage for the year being 1,365 miles. No additions to the mileage of the main line or branches were made during the year ending March 31, 1883. At that date the roads owned, leased and operated by the company were as follows:—

		Miles.
Main Line,	Chicago to Council Bluffs	500
Kansas Line,	Davenport, Iowa, to Atchison, Kansas	345
Leavenworth Br.	Atchison Junction to Leavenworth, Kansas	21.5
Kansas City Line,	Cameron, Mo., to Kansas City, leased	54
Oskaloosa Br.	Washington, Iowa, to Knoxville	77.5
Peoria Branch,	Bureau Junction to Peoria, leased	46.5
Branch Line,	South Englewood to South Chicago	7.5
Branch "	Wilton to Muscatine	12.5
Branch "	Newton to Monroe	17.5
Branch "	Des Moines to Indianola and Winterset	48.1
Branch "	Menlo to Guthrie Centre	14.6
Branch "	Atlantic to Audubon	25.5
Branch "	Atlantic to Griswold	14.6
Branch "	Avoca to Harlan	12
Branch "	Avoca to Carson	17.5
Branch "	Keokuk to Des Moines, leased	162.2
Branch "	Mt. Zion to Keosauqua	4.5
		1381.9

—of which the company owned 1,128½ miles, and leased 252½ miles, located in the following States: 236 miles in Illinois, 920 miles in Iowa, 223 miles in Missouri, and 2 miles in Kansas; in addition to which there are 140 miles of second track and 263¾ miles of side track, equal to 1,783¾ miles of single track,

At the close of the fiscal year 1881–'82 (there having been added during the year 6 locomotives and 598 cars of all kinds) the equipment consisted of 296 locomotives, 17 sleeping-coaches, 117 passenger coaches, 39 baggage, mail and express cars, 6 railway postal cars, 6 dining cars, 2 officers' and paymasters' cars, and 7,499 freight, stock, coal, etc., cars, and 666 cars used in repairs; and at the close of the fiscal year 1882–'83, (13 locomotives, 8 passenger, 2 sleeping, 2 railway post-office, and 50 box freight cars having been added during the year) the company had 309 locomotives, 127 passenger coaches, 19 sleeping-coaches, 41 baggage, mail and express cars, 8 railway postal cars, 6 dining cars, 2 officers' and paymasters' cars, and 7,499 freight, stock, coal, etc., 2 cars, and 675 cars used in repairs.

The number of miles run by the passenger trains during the year 1882–'83 was 2,367,731; by freight trains, 6,623,435; by wood, gravel and construction trains, 701,512—total, 9,692,678, against 9,970,423 during the year 1881–'82, a decrease of 277,745.

The total number of passengers carried in 1882–'83 was 2,784,722, of whom 2,707,025 were first class, 43,491 second class, and 34,236 emigrant; 80,682 were through, and 2,704,040 way passengers; 1,349,066 went east and 1,435,656 west. The total number carried in 1881–'82 was 2,636,258, showing an increase of 148,464. The number of passengers carried one mile in 1882–'83 was 133,134,280, against 113,894,522 in 1881–'82, an increase of 19,239,758. This is equivalent to carrying each passenger 48 miles during the past year, against 43 miles during the previous year. The average rate per passenger was, in 1882–'83, 2.504 cents; and in 1881–'82, 2.505 cents; the average amount received being in the former year $1.19½ and in the latter $1.08¼.

The amount of freight transported during the past year was 6,909,775,184 pounds, against 7,509,063,136, in the previous year, a decrease of 599,287,952. The total paying freight carried one mile in 1882–'83 was 677,731,319 tons against 756,051,981 tons in 1881–'82, a decrease of 78,320,662 tons. The average rate per ton being in the past year 1.17 cent and in the previous year 1.28 cent.

During the past year, 25 miles of second track have been

constructed and brought into use. A continuous double track from Chicago to Bureau Junction, from Genesee to Rock Island and 4½ miles west from Davenport, is now used, a distance in all of 140 miles.

There have also been constructed 2 miles of new railroad, including a bridge across Des Moines River, to bring the Des Moines, Indianola and Winterset Branch Railroad into the city of Des Moines. The bridge is 625 feet in length, with stone abutments and piers. An addition of 14.75 miles of side track has been made to meet the demands of traffic.

The amount charged to construction account during the past year was $675,091.66, and to equipment account $173,730.12—a total of $848,821.78. The amount charged for similar purposes in the previous year was $1,403,246.69.

Of the $2,500,000 bonds reported as assets in the last annual report, $700,000 have been sold at the market rate, and the avails invested in stock and bonds of connecting and other railroads for the protection of this company's interest.

The Land Commissioner reports that there have been sold during the year, 27,306.70 acres of land for $278,513.28—the average price having been $10.20 per acre. The bills receivable now on hand amount to $1,403,482.57, a decrease during the year of $187,151.70. The total receipts for interest, etc., were $99,444.78. The amount charged tax account was $8,254.70. The sum remitted to the treasurer at New York during the year from the net receipts of the land office amounted to $560,000. The remaining unsold lands of the company, April 1, 1883, consisted of about 34,750 acres, a large proportion of which, however, is composed of scattered tracts, and of rough or hilly land; notwithstanding which it is anticipated that these lands will soon be disposed of at better prices than the most desirable land in the same neighborhood could command a year or two ago.

BALANCE SHEET, APRIL 1,

	1882.	1883.
Capital stock fixed, $50,000,000; amount issued	$41,960,000 00	$41,960,000 00
Six per cent. mortgage coupon bonds	7,270,000 00	6,950,000 00
Six per cent. mortgage registered bonds	5,230,000 00	5,550,000 00
Chicago and Southwestern bonds guaranteed	5,000,000 00	5,000,000 00
Addition and improvement account	4,500,000 00	5,800,000 00
Suspense account	8,913 37	10,149 54
Profit balance of income account	290,084 89	291,027 18
Total	$64,258,998 26	$65,561,176 72
	1882.	1883.
Cost of road and equipment, including all Branch roads owned by this company	$56,871,850 90	$57,720,672 68
Cost of Railroad Bridge at Rock Island	758,526 10	758,526 10
Capital stock and bonds of connecting roads	2,542,497 97	3,508,210 93
Loans payable on demand and cash in New York	1,156,838 40	1,415,299 39
Six per cent. Chicago, Rock Island and Pacific bonds	2,500,000 00	1,800,000 00
Due from Post Office Department	49,998 81	56,133 27
Stock of material, fuel, etc., on hand	212,498 00	275,739 19
Cash and balances due from other roads in hands of local Treasurer, Chicago	166,788 08	26,595 16
Total, as above	$64,258,998 26	$65,561,176 72

President and General Manager—R. R. CABLE.

Vice President—DAVID DOWS.

Directors—David Dows, Francis H. Tows, A. G. Dulman, James R. Cowing, Sidney Dillon, Jay Gould, R. P. Flower, Benj. Brewster, H. R. Bishop, New York; Hugh Riddle, H. H. Porter, Chicago; R. R. Cable, Rock Island; George G. Wright, Des Moines, Iowa.

General Superintendent—A. KIMBALL.

Secretary and Treasurer—FRANCIS H. TOWS.

Gen'l Ticket and Passenger Agent—E. ST. JOHN.

Gen'l Freight Agent—WM. M. SAGE.

Purchasing Agent—F. A. MARSH.

Tramway.

THIS department of the AMERICAN RAILROAD JOURNAL is devoted to the interests of Street Railways; and communications, suggestions and items of information relative to their organization, management and appliances are solicited by the editors. All communications should be accompanied by the name and address of the writer. The English nomenclature of "Tramway" is adopted in this department as being of greater convenience and more specific in its meaning than "street railway," though in allusion to individual organizations we shall preserve their corporate titles. It is our hope to nationalize the term Tramway, which is now generally used in every English-speaking territory with the exception of the United States.

THE STREET RAILROAD PROBLEM.

INDICATIONS reach us that there is widespread dissatisfaction with the use of horses or mules in the traction of street cars. The conviction seems to be general that the time has come when this system should be superseded by one less expensive, simpler, more rapid and more humane. On this last point, the refined sensibility of the age is disposed to condemn, perhaps with inadequate consideration, the employment of horses under the hard conditions of weary distances and the strain of frequent stoppings and startings. In hot weather, especially, the woes endured by car horses appeal with greater emphasis than ordinary to the feelings of a generous public. And indeed the sight of numerous animals lying dead or dying in the streets of this metropolis, may well set people to thinking whether or not the proper exercise of man's unquestionable right to the services of the brute creation, includes that of taking the horse from his stall and driving him in the blazing sunshine until he drops on the track. But how consistently with reasonable convenience can the car horse be superseded?

Generally speaking, experiments of the past, looking to this consummation, have not favored the hope that it will happen at an early period. The industrial history of the past few years records a remarkable list of failures in the attempt to discover some means of dispensing with the suffering car horse, recommending itself to general adoption. Our well-informed contemporary, the *Car-Builder*, has taken the trouble to give this list as follows: "There was the Remington car, which was tried in 1873. It had a Baxter upright boiler on the front platform, and carried sixty passengers on the Bleecker street line in New York, rounding the curves and getting over the grades beautifully, having a noiseless exhaust and consuming only five pounds of coal per mile. In 1876, the Baldwin Locomotive Works built a steam car for the Atlantic avenue road, in Brooklyn, which was pronounced to be a great success by members of the city council, mechanical experts and others, the trips being made in half the usual time with one or two other cars attached to the steam car. Then there was the Angamar steam car, which made regular trips on the New York Third Avenue line for a period of two months in the summer of 1879. On the front plat-

form was a small furnace and boiler. The requisite quantity of hot water was supplied from a stationary boiler at the starting station, and by throwing a few shovels full of live coals into the furnace, steam was generated sufficient for the trip without carrying any extra fuel. The working parts of the engine were underneath the car and hidden from view by side aprons. This car was under better control than horses; could do, as was claimed, a quarter more work of itself, besides hauling two other cars if necessary, and withal could be run cheaper than horse cars. The Ransom steam street car, built by Gilbert, Bush & Co., in 1877, was also a very complete affair, and performed excellent service, according to report, on the Market Street Railway of Philadelphia. Then there were a number of compressed air motors, similar in their design to the Mékarski system which is now attracting some attention in Europe. In France, the Paris Tramway Company has within the last five years experimented with twenty different systems for applying steam as a motor upon street railways, but without success." We are not aware that the condensed-air engine of Major Beaumont, of the British army, has received a proper trial in this country. Certainly, whatever its merits may be, the tramways of English towns are still strangers to it. The expectation of finding a motor to supersede horses on street lines may find its solution in the invention, by M. Faure, of the storage battery. It has been demonstrated that this invention is adaptable to supply a continuous and uniform motive force, and one under control; but whether its general use in street cars is practicable or not remains to be shown. In case it should be found so, its introduction would involve no extraordinary annoyance from interference with the streets, which would be necessary in order to accommodate the apparatus used in running cars by cable. At the same time, as we have shown in several recent numbers as well as in this, the cable system possesses advantages which are appreciated where it has been tried. The claim for it is—and figures and facts seem to demonstrate the claim—that money is saved and the public better served by means of the cable than the horse system; but the awkward fact still remains, that after ten years of use, the cable system seems to be approximately as far from reaching general preference as ever. Its adoption as the motor on the bridge between New York and Brooklyn is the latest instance to our knowledge; and, at the time of this writing, the success or non-success of the experiment is not predicable. Why said experiment is a solitary one east of Chicago is something we wish to know, and we shall be pleased to hear from any one able to inform us on the subject. Street car corporations, as the list of experiments quoted above shows, are not slow to test what promise to be improvements.

Perhaps their inaction in the matter under consideration is due to the great cost which would be incurred in the adaptation of the street to the innovation. If this is the case, the enterprising proprietors of cable-car systems will find their profit in preferentially procuring its adoption, as generally as possible, by corporations and companies engaged to provide new street railroads. The building and enlargement of cities give such persons opportunities of enterprise in this direction, which, if made the most of, cannot but result, so far as we can see, in the increased number of roads run by the cable system; and its general availability in the case of new roads would prove the first step towards its universal adoption. Now, more than ever before, the short-comings of the horse system are conspicuous; and out of the dissatisfaction consequent thereupon, there surely will be evolved, at an early date, something to supersede it, whether by the employment of the cable, electricity, compressed air, or other means.

R. F. Bridewell's Cable Road.

WE have found an illustrated pamphlet on the above subject, quite interesting reading. Its subject is increasing in importance every day, and our readers will appreciate the statement of a few facts from the little book under review. We presume that R. F. Bridewell, No. 1,606 Leavenworth avenue, San Francisco, will mail a copy in response to a request for it, from any place in either Europe or America.

The Clay Street Hill Cable Road, San Francisco, was the first built. It was begun ten years ago, is in use to-day, and is so far from being superseded, that cable roads are becoming almost numerous. Inquiry as to their construction and operation is keen both on this continent and in Europe.

Mr. Bridewell's new system introduces his six patents, which we can do scarcely more than name, referring the reader to the very adequate and pleasing description contained in the pamphlet which suggests these few sentences. It provides an underground rail-bed; a grip which works automatically over all cross cable roads, without the aid of a driver, which can be stopped over the engine house and started as readily as on any part of the road, and which will cross its own cable or any other; unique and efficient engine-house machinery for propulsion; an indicator and advertiser, the cars being provided with two endless bands placed at the top of them, and which are made to receive cards, one-half showing the names and numbers of all the streets to be crossed on the road and the other half advertisements; apparatus for turning corners and curves safely and expeditiously, and an air-brake and starter.

These are the principal features of a system which justly claims the intelligent examination of everybody interested in providing a rapid, economical and safe substitute for the horse-car system of street railways.

Step for Street Cars.

A NEWLY-PATENTED step for street cars is worthy of attention. It is the invention of Beeason J. J. Townsend, of St. Louis, and consists in making the rear step of a

one-ended car to slide beneath the same, the step being advanced or retracted by a device operated by the driver on the front platform. Longitudinal cleats are attached to the under side of the car body. These have upon the inner sides a rabbet groove to receive the edges of a sliding frame to which the step is attached. The under side of said rabbet groove forms a flange which is provided with slots or recesses. These receive anti-friction rollers or wheels, upon which the frame connected with the step is supported in such a manner that it can be easily pushed backward and forward. The rear end of a rod is attached to the frame already mentioned, and its front end to a lever by means of a hinge-joint. Said lever is supported on a fulcrum, and extends from it downward through a slot in the floor of the car, and upward to a convenient position for the hand of the driver. The lever has near its upper end a drop-catch, securing it in place when its upper end is in its forward position, and the step projected behind the car body. This catch has an upwardly-extending handle by which it can be raised to free the upper end of the lever for its backward movement to draw the step beneath the car. A fixed guard is provided, which descends in close proximity to the top of the step for the purpose of preventing the toe of a passenger from catching between the step and the car body.

Mr. Townsend's device is effective against unauthorized persons riding on the car step, especially children, whose pranks on the "bob-tail" are dangerous to themselves, and a source of inconvenience and danger to persons getting on and off the car.

THE president of one of the Boston horse railways is trying to apply the civil service reform rules to his employés. The other day Job Doolittle, a green down East chap, walked into the office and asked if they wanted a conductor. The president said no, and that they had one hundred applicants waiting for a chance. The president asked him what he knew about the duties of conductors. Job said in reply that he never saw a horse-car until he came to Boston, but he had been packing sardines down in Maine for two years, and if that was not a good training he did not know what more was wanted. The president, it is needless to say, put him at the head of the list of applicants.—*Harper's Drawer.*

SAMUEL G. ERNST, a piano tuner, of Cleveland, failed to get a through car on the East Cleveland Street Railway in going to the East End a few days ago. After riding to the barns he got on the next east bound car and the conductor asked him for his fare. He refused to give up the desired nickel on the ground that he should not be compelled to pay double fare because he was unfortunate enough not to catch a through car, and having besides already paid five cents for his ride. Ernst would neither pay, nor get off the car, but gave the conductor his address and was afterwards arrested on a warrant. The case was tried in the Police Court and Ernst was fined $5 and the costs, the court holding that the railroad company were justifiable in doing their business in the manner to best meet the wants of the largest number of their patrons, and to prevent themselves from being defrauded. The case will probably be appealed to a higher court.

List of Recent Patents for Inventions Relating to Tramways.

BEARING DATE JULY 3, 1883.

280,384. RAILWAY OPERATED BY UNDERGROUND ROPES: Joel B. Low, San Francisco, Cal., assignor of one-half to William B. Reaney, Baltimore, Md. Filed Sept. 9, 1882.

280,450. CAR-STARTER: Henry Clark, Milwaukee, Wis., assignor of two-thirds to Frank W. Erbacher and Christian Helms, Jr., same place. Filed May 7, 1883.

280,658. HORSESHOE: Joseph Nester, Wapakoneta, Ohio. Filed May 26, 1883.

280,739. HARNESS-SADDLE: J. Theodore Gurney, Boston, Mass. Filed April 6, 1883.

BEARING DATE JULY 10, 1883.

280,816. HORSESHOE: Arnold C. Hawes, Noroton, Conn. Filed Jan. 30, 1883.

280,819. HORSESHOE: Gustavos Heidel, St. Louis, Mo. Filed Feb. 28, 1883.

280,883. STEP FOR STREET-CARS: Beeason J. J. Townsend, St. Louis, Mo. Filed March 8, 1883.

280,889. HORSESHOE: John W. White, Dedham, Mass., and James C. Farmer, Providence, R. I. Filed May 14, 1883.

280,924. GONG-BELL: William S. Foster, Richford, Vt. Filed April 9, 1883.

280,925. PASSENGER-REGISTER: John W. Fowler and Daniel F. Lewis, Brooklyn, N. Y. Filed May 28, 1883.

281,080. BLINDER FOR BRIDLES: Dominick Kaltenbacher, Shelbyville, Ky. Filed Feb. 14, 1883.

BEARING DATE JULY 17, 1883.

281,256. TRACTION-ROPE RAILWAY: Charles F. Findlay and Daniel J. Miller, Chicago, Ill. Filed March 31, 1882.

281,284. TRACTION-ROPE RAILWAY: Daniel J. Miller and Charles F. Findlay, Chicago, Ill. Filed Aug. 1, 1882.

281,501. HARNESS-SADDLE: Benjamin J. Hartman, Wooster, Ohio. Filed March 3, 1883.

BEARING DATE JULY 24, 1883.

281,932. HORSESHOE: Ephraim Simar, West Union, Iowa, and Vine Dorance Simar, St. Paul, Minn. Filed Oct. 2, 1882.

281,952. HALTER: Ransom H. Armstrong, Hudson, Mich. Filed April 2, 1883.

BEARING DATE JULY 31, 1883.

282,108. HORSESHOE: Robert O'Hara and Charles H. Remington, Gilroy, Cal. Filed May 12, 1883.

A NEW bridle attachment has been invented by John C. Massey, of Round Mountain, Texas, It can be used with or without bits, and consists of a nose-clamping strap having end rings through which pass the ends of a chin strap, connected by rein straps passing through rings of a head strap of the attachment, which is connected with the crown strap of the bridle. The invention also comprises a connection of the martingale straps with the rings of the nose-clamping straps, whereby the attachment may be used for both driving and riding, to powerfully check up the horse when required, and also to prevent his rearing and plunging, by producing a pressure on his nostrils to cut off his breath.

WHEN you enter a crowded bob-tailed car it is agreeable to have a fellow passenger who is standing or sitting near the fare box take your nickel and put it in the box. But it is not conducive to the prosperity of the company owning the car to have the obliging passenger put the nickel in his pocket. A man was sentenced to the penitentiary for eighteen months recently, for enriching himself with a five-cent fare in this fashion in a car of the Twenty-third street line, New York City. He is said to have made a business of this shabby stealing, and to have reached the highest point of adroitness in his line.

LITERARY NOTES.

The Eighth Annual Report of the Railroad Commissioners of the State of Missouri, being for the year ending December 31, 1882, consists of nearly two hundred pages. The number of new companies organized during the year 1882 is twelve. Of these companies, the Springfield & Southern put 19 miles in operation, and the St. Joseph & Nebraska completed their line from Napier to Rulo, Atchison county, and leased same to the K. C., St., Jo. & C. B. Co. The Doniphan Branch railroad was completed early in 1883. Among the most important combinations of existing lines, within the State, were the perfection of the lease of the Missouri, Kansas & Texas to the Missouri Pacific and the sales of the St. Louis, Arkansas & Texas and the Joplin Railroads to the St. Louis & San Francisco Co. Since the close of 1882, however, the whole Wabash system has been leased to the St. Louis, Iron Mountain & Southern, which last road is owned by the Missouri Pacific Company, and the Hannibal & St. Joseph road has been sold to the owners of the Chicago, Burlington & Quincy. Miles in operation at the close of the year, numbered 4,501.58. The total gross earnings inside the State, so far as the same can be separately ascertained, amount to $27,616,659, equal to $6,305 per mile of road operated during the year. The total expenses amount to $17,875,000, equal to $4,082 per mile of road. The total net earnings amount to $8,741,659, equal to $2,198 per mile of road, and to thirty-five per cent. of gross earnings. The total amount of stock chargeable to the number of miles in Missouri is $112,500,000, equal to $25,000 per mile of road, and the total amount of bonded debt is $110,250,000, equal to $24,500 per mile of road, making the total stock and bond liabilities $222,750,000, equal to $49,500 per mile of road.

AN expression of enterprise, and at the same time, of remarkable taste—whether good or bad taste the reader will judge—comes to us from Minneapolis, Minnesota, a city distinguished among many other ways, as being the place where *Wood and Iron*, a paper we love to commend, is prepared and published. The last number of said contemporary received at this office, is bright and lively in a new wrapper, headed with a title of whose artistic quality, or otherwise, we would rather not express an opinion. The desire to be non-committal lest we should haply offend, influences us to silence regarding also a singular enormity which begins the first page of the body of the paper. Type in which the articles are printed is clear and good. An ornamental letter at the beginning of every article through nearly half the pages, is dropped when that containing the editorial matter is reached and fails to reappear elsewhere. Why the worthy publishers of *Wood and Iron* should present good reading, good paper and careful printing in such questionable shape is more than we can say. They have succeeded in making a journal as unique among its fellows, for mechanical eccentricities, as admirable in the spirit and nature of its contents.

THE passenger department of the New York, West Shore and Buffalo Railway Company have issued a dainty little book entitled, "Summer in the Catskill Mountains." It is an emanation from the ready pen of Kirk Munroe, is of a size convenient for the pocket, is provided with a good map of large size and numerous very pretty pictures is lavish in substantial information as well as pleasantly descriptive, and is stitched into a stiff cover of a color and other artistic qualities which give it a claim to the appreciation of all persons of correct taste.

DURING May and June, owing to the exhaustion of the appropriation for the publication of Consular Reports, there were no numbers issued. That for July is the more welcome for the interval, and the interest and value of its contents are above the average of preceding issues. Notable among its contents are articles entitled "Patent Law of Brazil," "Manufacture of Camphor in Japan," "Dwelling-House Accommodation in Glasgow"—this from the pen of Bret Harte—"The World's Coffee," "Island of New Guinea," and "American Trade in Madagascar." The pages of this collection of reports are crowded with facts, and although every one of the Consuls whose pen is represented, does not write with the fluency of Bret Harte, all of them present information of a valuable sort and not to be found elsewhere.

New Railroad to Watsontown, Pa.

THE long talked-of branch railroad from Milton to Watsontown has finally been brought to a focus. Reilly and Nolan, who built the new road from Shamokin to West Milton, have received a contract from the Philadelphia and Reading Railroad company to grade and build the new branch through the borough of Milton from the intersection of the Catawissa railroad junction, a little below Milton. This branch is to be built for the accommodation of manufacturers in the town, where there has been no competition heretofore. The contract for grading and building the road from Milton to this place has not yet been awarded, but that the road will be built is a settled fact. We know whereof we speak.

ACCORDING to experiments made on the Hanover, Cologne and Minden Railway, fir sleepers injected with chloride of zinc required a renewal of 21 per cent. in 11 years, birch sleepers injected with creosote a renewal of 46 per cent. at the end of 22 years, and oak sleepers injected with chloride of zinc a renewal of about 21 per cent. at the end of 17 years, while the same kind of sleepers in their natural state required a renewal of at least 49 per cent. at the end of a like period. The conditions in each of these cases were very favorable for obtaining trustworthy proofs.

THE Phosphor-Bronze Smelting Company, Limited, Philadelphia, are furnishing to order all kinds of car and locomotive bearings and miscellaneous castings in Phosphor-Bronze "S" Bearing Metal, at rates which save to buyers the profit of "middlemen." Every reader is acquainted with the superior fitness of phosphor-bronze for the purposes indicated.

THE Pennsylvania Railroad Company is building an inclined plane at Pittsburgh for hoisting cars. The cables are to have an ultimate strength of 173 tons each, the engine will be 700 horse-power, and the cost of the structure will be $275,000.

Financial.

THERE is no disputing the fact that there is a feeling of uncertainty and distrust in the business world. This feeling of uncertainty and distrust, which has for months pervaded the stock market, was intensified during the past week, Boston contributing more than her share of failures in a trade which has been considered one of her chief industries; and this has made business men sensitive, not knowing where the blow will fall next. The Vermont bank failures, coupled with the above, and the reason given for the failures, have led moneyed men to wonder whether any more bank presidents were in the same box.

Saturday's dealings at the Stock Exchange revealed the feelings of the brokers on the general depression. The general list was rendered weak and feverish by the constant circulation of rumors, asserting the failure of commercial firms in this city and of out-of-town banks. There were no failures reported, however, until Monday, when the suspension of Cecil, Ward & Co. was announced at the Exchange, and 1,600 shares of well-distributed stocks were sold for their account. This failure did not affect the stocks or cause any excitement, the house being comparatively small.

The week's fluctuations, ending Saturday night, were in some respects very startling, as can be observed by the increased sales of shares this week over the previous. Sales at the Board, during the week ending August 11th, amounted to 1,917,696 shares against 784,830 for the previous week.

The most marked depression seems to have defined in the Northern Pacific and the Gould properties, Northern Pacific common selling on Monday as low as 39⅝, whereas on August 4th it closed at 48⅝. The Oregon Transcontinental sold as low as 59 on August 13th, whereas on August 4th it closed at 76⅜. Other stocks have suffered considerably, but we mention these two to show the general drift.

Three prominent men have expressed themselves in the *New York Herald* of August 14th, as follows:

Mr. A. S. Hatch, of Fisk & Hatch, and president of the Stock Exchange, said, when asked if there was any danger of a panic, "There is not the slightest danger of a panic. This is only liquidation carried too far. The public is not suffering by this great drop in the price of stocks. The people at large haven't been in Wall street for two years. By-and-by people will wake up to the fact that things are too cheap, and then they will be climbing over each other's shoulders to buy stocks. A country that produces $2,500,000,000 of wealth every year is not going to the dogs very fast, and there is no cause for alarm. Why, our crops of cotton, corn and wheat alone are worth nearly $2,000,000,000, to say nothing of petroleum and other products. There is no more danger of a panic than that I will be struck by lightning as I stand here."

President Edwards, of the Bank of the State of New York, said: "There will be no panic. This decline is a good thing. The public is out of the stock market, and the lower prices go, the more apt people will be to come in and buy. The men who are carrying stocks now are able to hold them."

"In certain conditions of the human system," said Mr. Henry Clews, "it is a good thing to be seasick. You feel dreadfully bad at the time, but you are ever so much better afterward. The stock market is seasick and O, how badly we feel! But we shall be all the better for it presently."

We are inclined to believe that there is no danger of a panic, as for some time back Wall street has been in the hands of the brokers, outside traders giving it a wide berth. It is almost certain that some stocks are selling for less than their real value, and when the public wake to this fact, they will certainly rush in and buy, which will go a long way towards settling the market again.

Money on call rules very easy, which shows an abundance of the needful, and its lack of circulation is simply an evidence of distrust on the part of capitalists. The probabilities are that money lenders are expecting a stringency in the market during the Fall, and are keeping their money well in hand to take advantage of the high rates that generally rule during that period.

Some of the London papers express the opinion that our country will, irrespective of her balance of indebtedness to Europe, require the loan of more gold from that source. While as above stated, money to-day is easy in this city, the rate at the Bank of England is higher than it has been at this season for four years past, viz.: four per cent. At the Bank of France it stands the same as a year ago, and this bank holding nearly forty million francs more gold than it did then, England would find it easy to draw a part of this stock to herself. A drain of gold, however, would be a serious thing to both England and France, and they are closely watching any indications of a demand for it in our country.

Our London contemporaries do not take into account the large amount of gold that our people are holding among themselves. Though the Treasury reserve would be first drawn upon, any real demand would cause the private stock to flow into the financial centers. The absorption of the gold importations of two and three years ago, puzzled many brains; they could not be traced to the treasury or the banks, but should the gold be needed, our people will not be long in showing its whereabouts.

From 1879 to 1882 imports of gold exceeded exports by $155,200,000, the domestic production during that period being estimated at $143,000,000. From January, 1879, to November, 1882, the gold in the Treasury, as shown by Treasury returns, increased $35,700,000; the bank returns show an increase of $56,000,000, which allows for an increase of over $200,000,000 in the amount in circulation. The Director of the Mint estimates it at $187,000,000. In the latter part of 1882, statistics showed $306,000,000 in circulation and $260,000,000 in the banks and the Treasury. This would allow a little over $10 in gold for each of our population, and so little gold being actually used, one would suppose that the country might easily spare some of the accumulation.

But this it cannot do, while the coinage of the standard dollar is maintained; so long as we are turning out an artificial coin we must devise artificial means for retaining the gold which we have. But while we cannot afford to lose gold, we think there is little to create so great a demand as to require us to borrow it from abroad.

THE passenger travel over the Pennsylvania Railroad during July was nearly 20 per cent greater than in July, 1882.

New Inventions.

TO INVENTORS.

THIS department of the JOURNAL is devoted to descriptions of new inventions applicable to railroads. We publish each month a list of the same, and invite each inventor to forward us a description of his invention, believing the publication of facts regarding same will be perused with interest by railroad men, and all interested in the development of our railroad system. *We make no charge for publishing these.*

The descriptions of an invention should be carefully prepared, and written only on one side of the sheet, each sheet properly numbered. Cuts (electrotypes) illustrating the device are always an aid, and attractive to the reader. These should be procured and sent with the "copy." They can be sent by mail. The position of the cut or cuts should be noted in the "copy."

List of Patents for Inventions Relating to Railways, Machinery, Etc.

BEARING DATE JULY 3, 1883,

280,364. BOILER-FEEDER: Josiah S. Du Bois, Camden, N. J. Filed Sept. 25, 1882.

280,381. CAR-COUPLING: George W. Knapp, Corning, N. Y. Filed Dec. 13, 1882.

280,386. CAR-TRUCK: John McLachlan, Chicago, Ill. Filed Dec. 14, 1882.

280,395. LUMBER-DOOR FOR RAILROAD BOX-CARS: George B. Nichols, Galveston, Tex. Filed Dec. 6, 1882.

280,406. RAIL-JOINT: Wm. Seaton, London, England. Filed Dec. 26, 1882. Patented in England Dec. 14, 1881, No. 5,465.

280,414. DRAW-BAR FOR RAILWAY-CARS: Stephen P. Tallman, Dunellen, N. J. Filed March 29, 1883.

280,423. LUBRICATING-CUP: Simon Peter Weller and George Rudolph Roesch, Denver, Col. Filed March 10, 1883.

280,427. BAGGAGE-CHECK: William W. Wilcox, Chicago, Ill. Filed Oct. 4, 1879.

280,430. CAR-DUMPER: Theodore B. Wire, Geneva, Ohio. Filed April 6, 1883.

280,438. ROTARY ENGINE: Charles H. Bacon, Boston, assignor of one-half to Arthur Fuller and Eustis Newhall, Lynn, and John H. Sturgis, Brookline, Mass. Filed Nov. 17, 1882.

280,442. SAFETY CAR-TRUCK: Samuel Brown, San Francisco, Cal. Filed April 10, 1883.

280,449. CAR-COUPLING: William H. Castle, Ashtabula, Ohio. Filed April 21, 1883.

280,470. COVERING FOR STEAM-BOILERS: Edwin A. Hayes, New York, N. Y. Filed Sept. 13, 1882.

280,476. SAFETY RAILWAY-SWITCH: David H. Hoult, Lansdale, Pa. Filed Jan. 13, 1883.

280,502. CAR-COUPLING: Oliver P. Mossgrove, Steubenville, Ohio. Filed Jan. 15, 1883.

280,516. CAR-COUPLING: Abel W. Robinson, Anna, Ill., assignor to himself and Thomas B. Rhodes, same place. Filed April 24, 1883.

280,523. SIGNAL-CAR FOR RAILWAY-TRAINS: John Schofield, South River, N. J. Filed Feb. 12, 1883.

280,528. SNOW-PLOW: Fielding Snedigar, Elkader, Iowa. Filed Oct. 17, 1882.

280,537. CAR-DOOR: John L. Wagner and James Seath, Terre Haute, Ind., assignors to themselves, Thompkins A. Lewis, Indianapolis, Ind., Henry R. Duvall, New York, N. Y., and Robert S. Cox, Terre Haute, Ind. Filed May 21, 1883.

280,559. ELECTRO-MAGNETIC LOCOMOTIVE: Samuel H. Beckwith, Utica, N. Y., assignor to Frank J. Callanen, same place. Filed Jan. 5, 1883.

280,569. LUBRICATOR FOR JOURNALS: Felix Brown, New York, N. Y. Filed April 28, 1883.

280,587. CAR-AXLE LUBRICATOR: Augustus B. Davis and Nathan H. Davis, Philadelphia, Pa., assignors of one-third to Lewis C. Gratz, same place. Filed June 24, 1882.

280,589. INJECTOR: James Dimelow, Wilmington, Del., assignor to the Delaware Steam Appliance Company, same place. Filed Feb. 26, 1883.

280,605. STEAM-GENERATOR: Chas. Gorton, Philadelphia, Pa. Filed April 24, 1883.

280,621. DUMPING-CAR: Levi Hetfield, Plainfield, N. J. Filed May 28, 1883.

280,624. SWITCH AND SIGNAL LANTERN: Lawson G. Huntington, New York, N. Y. Filed May 4, 1883.

280,635. CAR-ROOF: Alfred P. Le Gros, Louisville, Ky. Filed Dec. 9, 1882.

280,640. CAR-BRAKE: Ebenezer W. Lippincott, Grafton, W. Va. Filed May 17, 1883.

280,654. RAILWAY-RAIL JOINT: Richard P. Morgan, Jr., Dwight, Ill. Filed Dec. 6, 1882.

280,668. STEAM ROCK-DRILL: Joseph W. V. Rawlins, Houghton, Mich. Filed March 12, 1883.

280,672. VALVE-GEAR FOR STEAM-ENGINES: Carl Schinke, St. Louis, Mo., assignor to the St. Louis Iron and Machine Works, same place. Filed March 26, 1883.

280,688. GRAIN-CAR DOOR: B. Frank Teal, Philadelphia, Pa. Filed May 11, 1882.

280,702. CAR-WHEEL: Warren J. Willits, Three Rivers, Mich., assignor to the Sheffield Velocipede Car Company, same place. Filed Oct. 17, 1882.

280,703. STEAM-ENGINE: John C. Wilson, Cameron, Tex. Filed Mar. 10, 1883.

280,710. STEAM-ENGINE: William T. Baker, Findlay, Ohio, assignor of two-thirds to Russell Marvin and John Shull, both of same place. Filed March 30, 1883.

280,721. BOILER-FEED: Willard B. Culver, Pittston, Pa. Filed Feb. 2, 1883.

270,722. CAR-VENTILATOR: Prince Joseph Marie Jean Armand Pignatelli d'Aragon, Tours, France. Filed Oct. 6, 1882. Patented in France June 7, 1882, No. 149,376; in England Sept. 1, 1882, No. 4,179, and in Belgium Sept. 12, 1882.

280,733. EJECTOR AND INJECTOR: Louis B. Fulton, Pittsburgh, Pa Filed Oct. 31, 1882.

280,735. DUMPING-CAR: Joseph H. Gartside, Pittsburgh, Pa., assignor of two-thirds to William F. Aull and Edward Martin, same place. Filed Feb. 3, 1883.

280,736. AUTOMATIC LUBRICATOR: William S. Germeyer, Carlisle, Pa., assignor of one-half to Theodore Cornman, same place. Filed May 3, 1883.

280,743. CAR-COUPLING: Hale E. Hawk, Kansas City, Mo. Filed Jan. 15, 1883.

280,744. CAR-STARTER: Lewis W. Hewett, New York, N. Y., and Thomas Millen, Jersey City, N. J., assignors to Philip B. Shaw, Williamsport, Pa. Filed Feb. 21, 1883.

280,760. RAILROAD-RAIL COUPLING: Hiram Parker, Mount Pleasant, Iowa. Filed March 14, 1883.

280,761. GAS-LANTERN FOR RAILWAY-CARS, ETC.: Julius Pintsch, Berlin, Prussia, Germany. Filed Jan. 12, 1883.

280,766. ROTARY ENGINE: Thomas M. Rinehart, Pittsburgh, Pa., assignor to himself, Frederic Winter, and Adam Goodwin, same place. Filed March 31, 1883.

280,775. BELT-PULLEY: Aurin Wood, Worcester, Mass. Filed June 6, 1881. Renewed June 12, 1883.

BEARING DATE JULY 10, 1883.

280,783. CAR-VENTILATION: William Bedell, New York, N. Y. Filed Jan. 20, 1883.

280,802. COMBINED PORTABLE RAILWAY AND WORKING-CAR: Thomas Dark, Buffalo, N. Y. Filed Feb. 13, 1883.

280,835. COMPOUND PUMP: Henry C. Langrehr, San Francisco, Cal. Filed Nov. 3, 1882.

280,856. PAINT COMPOUND OR MIXTURE FOR ROOFS AND OTHER PURPOSES: Arthur G. Peuchen, Toronto, Ontario, Canada. Filed Nov. 7, 1882.

280,903. CINDER-CAR: Jerome L. Boyer, Columbia, Pa. Filed April 9, 1883.

280,904. HOISTING APPARATUS FOR LOCOMOTIVE AND PORTABLE ENGINES: Jerome L. Boyer, Columbia, Pa. Filed May 19, 1883.

280,949. CAR-COUPLING: Peter F. Panabaker, Coon Rapids, Iowa. Filed May 19, 1883.

280,959. SAFETY DEVICE FOR LOCOMOTIVE-PILOTS: Oscar Rothrock, Beech Creek, Pa. Filed March 9, 1883.

280,971. STEAM ROCK-DRILL: Amos Stevens and Arthur L. Stevens, Philadelphia, Pa. Filed Feb. 20, 1882. Renewed June 11, 1883.

280,972. GRAIN-CAR DOOR: Jairus J. Treat, Detroit, Mich. Filed Feb. 20, 1882.

280,974. OSCILLATING PISTON-ENGINE: Orange H. Venner, Malden, assignor of one-half to George W. Venner, Boston, and Alexander M. Wood, Somerville, Mass. Filed March 23, 1883.

280,976. FREIGHT-CAR ROOFING: John C. Wands, St. Louis, Mo. Filed May 12, 1883.

280,978. BEARING FOR CAR-AXLES: Isaac P. Wendell, Philadelphia, Pa. Filed Nov. 23, 1882.

280,984. GOVERNOR FOR STEAM-ENGINES: Napoleon W. Williames, Philadelphia, Pa. Filed April 27, 1883.

280,988. RAILROAD-SWITCH: William A. Wood, Meadville, Mo. Filed Feb. 14, 1883.

280,993. BALANCED SLIDE-VALVE: James B. Allfree, Cumberland, Md. Filed April 27, 1883.

281,004. ROTARY ENGINE: John J. Blair, Tocoma, Wash. Filed Aug. 30, 1882.

281,010. LUBRICATOR: Wm. W. Brisben, Cleveland, Ohio. Filed May 15, 1883.

281,014. FEED-WATER HEATER: Thomas Reed Butman, Cleveland, Ohio. Filed March 9, 1883.

281,015. BALANCED SLIDE-VALVE: Timothy Calver, Portsmouth, Ohio, and Samuel H. Stout, Covington, Ky. Filed April 14, 1883.

281,031. SNOW-PLOW: Eugene C. Dawson, Maquoketa, Iowa. Filed March 3, 1883.

281,037. STEAM-BOILER: Patrick F. Dundon, San Francisco, Cal. Filed April 11, 1883.

281,050. EJECTOR: Louis B. Fulton, Pittsburgh, Pa. Filed July 30, 1881.

281,051. STEAM-BOILER: Richard Garstang, St. Louis, Mo. Filed Feb. 27, 1883.

281,055. NUT-LOCK: John B. Greenhalgh and Henry Greenhalgh, Blackstone, Mass. Filed Dec. 30, 1882.

281,058. BELT-FASTENER: Hubert C. Hart, Unionville, Conn. Filed May 18, 1883.

281,067. STOCK-CAR: Henry C. Hicks, Minneapolis, Minn. Filed Mar. 17, 1883.

281,081. STRAIGHT-WAY VALVE: Bartholomew J. Kelly, Troy, N. Y. Filed March 30, 1883.

281,085. CAR-BRAKE: Charles Lederer and Frank X. Marks, Norfolk, Neb. Filed April 28, 1883.

281,094. CAR-COUPLING: Gottlieb Maulick, Beaver Falls, Pa. Filed April 10, 1883.

281,122. VALVE-GEAR: Ferris Ogden, Mount Vernon, Ohio. Filed Jan. 31, 1883.

281,123. VALVE-GEAR: Jno. D. Olds, Fort Wayne, Ind. Filed Nov. 27, 1882.

281,129. CAR-SEAT: William H. Paulding, Peekskill, and Bernard J. Maybeck, New York, N. Y. Filed March 26, 1883.

281,138. MACHINE FOR FINISHING GLOBE-VALVE BODIES: Francis H. Richards, Springfield, Mass., assignor to the Joel Hayden Brass Company, Lorain, Ohio. Filed Oct. 26, 1882.

281,153. LANTERN: Frank E. Smothers, Gloucester, Mass. Filed May 14, 1883.

281,155. CAR-COUPLING: Thomas Sparks, Kentontown, Ky. Filed April 28, 1883.

281,157. SELF-ADJUSTING BEARING FOR CAR-AXLES: Oscar S. Stearns, New York, N. Y., assignor, by direct and mesne assignments, to the Stearns Railway Improvement Company, of New York. Filed Dec. 2, 1881. Renewed June 5, 1883.

281,160. SPARK-EJECTOR FOR LOCOMOTIVES: James K. Taylor, Boston, Mass., assignor to J. K. Taylor Company, Concord, N. H. Filed March 22, 1883.

281,163. BAGGAGE-CHECK: John Alexander Thompson, Monticello, N. Y. Filed Feb. 14, 1883.

281,170. CAR-DOOR: Arnold W. Zimmerman, Chicago, Ill. Filed April 9, 1883.

281,173. CAR-AXLE-BOX LID: Warren J. Ball, Canton, Ohio. Filed Oct. 16, 1882.

281,174. CAR-DOOR FASTENING: Richard H. Briggs and James H. Dougherty, Whistler, Ala. Filed April 10, 1883.

281,189. OIL-CAN: John W. Jackson, Sharpsville, Pa. Filed May 17, 1883.

281,192. SLEEPING-CAR PUMP-JOINT: John Kirby, Jr., Ludlow, Ky., assignor to Post & Co., Cincinnati, Ohio. Filed Feb. 13, 1883.

281,214. GRAIN-ELEVATOR: William Watson, Memphis, Tenn. Filed March 26, 1883.

281,215. STATION-INDICATOR: John W. Watts, Clarksville, Mo. Filed March 22, 1883.

281,222. BRAKE-LOCK: Cyrus C. Clay, Dunnings, Pa. Filed Nov. 1, 1882.

BEARING DATE JULY 17, 1883.

281,241. LUBRICATOR: Warren H. Craig, Lawrence, Mass. Filed June 13, 1883.

281,246. CAR-DOOR FASTENER: Samuel L. Denney, Strasburg, assignor of one-fourth to Israel L. Landis, Lancaster, Pa. Filed May 24, 1883.

281,248. PROCESS OF PREPARING SLAG FOR RAILWAYS AND ROADWAYS: Charles Diebold, Lebanon, Pa. Filed Dec. 11, 1882.

281,251. CAR-COUPLING: Casper C. Eber, St. Paul, Minn. Filed April 12, 1883.

281,271. CAR-COUPLING: Isaac N. Hoyt, Augusta, Wis. Filed March 20, 1883.

281,312. CUT-OFF-VALVE GEAR: John K. Hallock and Elijah F. Spaulding, Erie, Pa., assignors of one-third to Elmer S. Smith, same place. Filed May 11, 1883.

281,327. LOCOMOTIVE HEAD-LIGHT WITH SIGNAL ATTACHMENT: Irvin A. Williams and Charles I. Williams, Utica, N. Y. Filed March 24, 1882.

281,343. HANGER FOR SHAFTING: Philip Cramer, Montreal, Quebec, Canada. Filed Sept. 28, 1882. Patented in Canada Dec. 4, 1881, No. 13,794.

281,380. BOILER-FEEDER: Richard Lanckner, Bay City, assignor of one-half to Sophia Jocken, East Saginaw, Mich. Filed Jan. 31, 1883.

281,383. STATION-INDICATOR: Jos. A. McDERMOTT, Lynn, Mass., assignor of three-eighths to John H. Caswell, same place. Filed Dec. 14, 1882.

281,385. INJECTOR: Wm. T. Messinger, Cambridge, Mass. Filed Nov. 6, 1882.

281,389. INJECTOR: Horace B. Murdock, Detroit, Mich. Filed April 3, 1883.

281,394. GLOBE OR SIMILAR VALVE: James L. Phillips, Worcester, Mass. Filed Oct. 3, 1882.

281,409. SLEEPING-CAR: John A. Sleicher, Troy, N. Y. Filed Feb. 19, 1883.

281,421. REFRIGERATING-CAR: Geo. R. Wight, New York, N. Y. Filed Dec. 5, 1881.

281,422. METHOD OF CASTING CAR-WHEELS: Wm. Wilmington, Toledo, Ohio. Filed June 13, 1883.

281,445. CAR-BRAKE: Edmund R. Bristol, Madison, Wis. Filed May 26, 1883.

281,479. CAR-COUPLING: Charles W. Ferguson, Janesville, Wis. Filed May 8, 1883.

281,486. RAILWAY-SWITCH: John Gebby, Jr., Bellefontaine, Ohio. Filed Jan. 31, 1883.

281,495. DEPOSITING TORPEDOES IN SNOW-BANKS: George A. Gunther, New Utrecht, N. Y. Filed Jan. 17, 1883.

281,496. SNOW-PLOW: George A. Gunther, New Utrecht, N. Y. Filed Jan. 27, 1883.

281,497. SNOW-PLOW: George A. Gunther, New Utrecht, assignor of one-third to Hermann Keirstein, Brooklyn, N. Y. Filed Feb. 24, 1883.

281,516. RAILWAY TIME-INDICATOR: J. Miller Kelly, Rochester, N. Y. Filed Jan. 26, 1883.

281,535. CAR-COUPLING: Alfred C. Long, Flora Dale, Pa. Filed April 3, 1883.

281,538. CAR-AXLE LUBRICATOR: Michael MacMahon, Brooklyn, N. Y., assignor of five-eighths to Samuel Van Ness and Daniel Sullivan, both of same place. Filed Oct. 18, 1882.

281,579. ELECTRIC VALVE-GEAR FOR STEAM-ENGINES: Geo. W. Storer, Philadelphia, Pa. Filed Oct. 23, 1882.

281,581. SMOKE AND SPARK CONVEYOR: Ohannes S. Tavshanjian, Constantinople, Turkey. Filed April 6, 1883.

281,631. REFRIGERATOR-CAR: Charles P. Jackson, Chicago, Ill. Filed April 13, 1883.

BEARING DATE JULY 24, 1883.

281,665. VALVE FOR STEAM-ENGINES: George H. Burley, Tyrone, Pa. Filed May 1, 1883.

281,672. ELECTRIC RAILWAY: Francis B. Crocker, Charles G. Curtis, and Schuyler S. Wheeler, New York, N. Y. Filed April 6, 1882.

281,684. STATION-INDICATOR: Asher B. Gill, Philadelphia, Pa. Filed April 13, 1883.

281,699. LUBRICATOR: John Kelly, Peoria, Ill. Filed Jan. 13, 1883.

281,700. FRICTION-CLUTCH: D. Randolph Kinyon, Raritan, N. J., assignor of one-half to Job C. Kinyon, same place. Filed May 11, 1883.

281,702. BOILER-FEEDER: William H. H. Knowlton, Chicago, Ill., and Philip Sage, Dubuque, Iowa. Filed April 19, 1883.

281,718. HAND ROCK-DRILLING MACHINE: Henry F. Parsons, San Francisco, Cal., and Hugo Borchardt, Bridgeport, Conn., assignors to Daniel Cook, San Francisco, Cal. Filed Sept. 12, 1881.

281,730. RAILWAY-CAR ELECTRICAL CIRCUIT-COUPLER: Palmer C. Ricketts, Troy, N. Y. Filed Oct. 7, 1880.

281,733. BAGGAGE-CHECK: Charles Sears, South Evanston, Ill. Filed Oct. 20, 1882.

281,766. SPARK-ARRESTER: Richard M. Howling, Ballarat, Victoria. Filed Feb. 3, 1883. Patented in Victoria, Oct. 4, 1882, No. 3,316, and in New South Wales Dec. 5, 1882.

281,774. STEAM-BLOWER: William McClave, Scranton, Pa. Filed May 1, 1883.

281,775. HEATER AND PURIFIER FOR FEED-WATER: Walter S. McKinney, Binghamton, N. Y. Filed May 18, 1883.

281,779. CAR-COUPLING: Frank Miller, Olema, assignor of one-fourth to Upton M. Gordon and David Nye, San Rafael, Cal. Filed May 26, 1883.

281,796. ROTARY ENGINE: Orton H. Robinson, Manistee, Mich. Filed Dec. 20, 1882.

281,797. LANTERN: Allen J. Sawyer, Clark Woodbury, and Erastus Lane, Oldtown, Me. Filed May 28, 1883.

281,801. HEATING APPARATUS FOR CARS: Isidor Shirpser, San

Francisco, Cal., assignor to Paul Steck, same place. Filed March 13, 1883.

281,803. APPARATUS TO PREVENT BOILER EXPLOSIONS: Lebbeus Simkins, Marshfield, Oreg. Filed April 24, 1883.

281,806. RAILWAY-TIE: Addison R. Spaulding, Lake City, Minn. Filed March 24, 1883.

281,809. STEAM-ENGINE: Jesse Walrath, Racine, Wis. Filed April 23, 1883.

281,812. CUT-OFF VALVE: Napoleon W. Williames, Philadelphia, Pa. Filed April 27, 1883.

281,828. PULLEY: William F. Boysen, Buffalo, N. Y. Filed Jan. 10, 1883.

281,835. TICKET-PUNCH: William H. Campbell, New York, N. Y. Filed May 22, 1883.

281,836. STEAM-ACTUATED VALVE: George Clarke, Cincinnati, Ohio, assignor, by direct and mesne assignments, to the Clarke Automatic Steam Valve Company, same place. Filed Dec. 26, 1882.

281,839. RAILWAY PNEUMATIC SWITCH AND ELECTRIC INDICATOR: Charles A. Cooper, Pittsburgh, Pa. Filed June 19, 1882.

281,843. STEAM-ENGINE: Franklin D. Cummer, Detroit, Mich., assignor to the Cummer Engine Company, Cleveland, Ohio. Filed Sept 7, 1881.

281,844. EXCAVATOR AND WRECKER COMBINED: Nathan J. Cuyle, Oswego, N. Y. Filed April 5, 1883.

281,850. UNIVERSAL JOINT: Robt. Edmonds, Norfolk, Va. Filed April 3, 1883.

281,852. STEAM BOILER AND FURNACE: Adam Cyrus Engert, Three Mills Lane, County of Middlesex, England. Filed March 27, 1883.

281,863. CAR-SEAL: Freeman C. Gillmore, Chicago, Ill. Filed March 27, 1883.

281,869. LOCOMOTIVE HEAD-LIGHT: Alex. H. Handlan, Jr., St. Louis, Mo. Filed March 21, 1883.

281,890. VERTICAL STEAM-BOILER: Joseph A. Langdon, Pittsburgh, Pa. Filed March 26, 1883.

281,901. CAR-COUPLING: Wm. McConway, Pittsburgh, Pa. Filed April 4, 1883.

281,907. BALANCE-VALVE: James B. Miller, Kent, Ohio. Filed April 6, 1883.

281,935. CAR-COUPLING: Frederick Sloat, Chicago, Ill., assignor of one-half to Martha W. Perkins, same place. Filed April 4, 1883.

281,936. ASH-PAN FOR LOCOMOTIVES: Charles F. Smith, West Bay City, Mich. Filed April 12, 1883.

281,954. SNOW-PLOW: William H. H. Baker, Freeport, Ill. Filed Mar. 29, 1883.

281,974. CAR-COUPLING: Nathaniel J. Cheeney, East Greenwich, R. I. Filed Nov. 2, 1882.

281,975. CAR-STARTER: Wm. B. Cleaveland, Bridgeport, Conn. Filed March 15, 1883.

281,983. CAR-COUPLING: Robert H. Dowling, Newark, Ohio, assignor of one-half to Charles H. Follett, same place. Filed Jan. 4, 1883.

282,009. CAR-COUPLING: John O'Connor, Toronto, Ontario, Canada. Filed April 27, 1883.

BEARING DATE JULY 31, 1883.

282,042. PUMP-REGULATOR: James H. Blessing, Albany, N. Y. Filed April 7, 1883.

282,058. VALVE-SEAT FOR STEAM-ENGINES: Isaac H. Congdon, Omaha, Neb. Filed Jan. 15, 1883.

282,070. PUMPING MECHANISM FOR SUPPLYING RAILWAY-TANKS: Robert P. Garsed, Norristown, Pa. Filed March 24, 1882.

282,071. STEAM MOTOR-ENGINE: Harvey F. Gaskill, Lockport, N. Y. Filed Jan. 2, 1883.

282,103. BLAST-CONCENTRATOR FOR LOCOMOTIVES: Henry Millholland, Philadelphia, Pa., assignor of one-half to Robert W. Lesley, same place. Filed May 28, 1883.

282,104. DEFLECTING-PLATE FOR LOCOMOTIVES: Henry Millholland, Philadelphia, Pa., assignor of one-half to Robert W. Lesley, same place. Filed May 28, 1883.

282,114. NUT-LOCK: John Parr, Humboldt, Neb. Filed Dec. 6, 1882.

282,120. SAFETY-SEAM FOR STEAM-BOILERS: James R. Robinson, Cambridge, Mass. Filed Nov. 3, 1882.

282,125. CAR-UNLOADING APPARATUS: Vine D. Simar and John Dale, St. Paul, Minn. Filed Dec. 19, 1882.

282,127. LUBRICATOR: Frank S. Somes and Samuel H. Kimball, Boston, Mass., assignors, by mesne assignments, to said Kimball. Filed May 22, 1883.

282,149. CAR-AXLE-BOX: Wm. S. G. Baker, Baltimore, Md. Filed May 9, 1883.

282,158. APPARATUS FOR LIGHTING CARS BY ELECTRICITY: George D. Burton, New Ipswich, N. H. Filed Dec. 19, 1882.

282,172. STEAM-GENERATOR: Alfred H. Crockford, Newark, N. J. Filed Feb. 19, 1883.

282,196. REFRIGERATOR-CAR: Charles P. Jackson, Chicago, Ill. Filed May 9, 1883.

282,200. ELEVATED WIRE RAILWAY: Smith H. Knapp and Alpheus E. Adams, Danbury, Conn. Filed Feb. 5, 1883.

282,205. METHOD OF ATTACHING SEALS TO CARS: Thomas H. Malone, Milwaukee, and Geo. A. Whiting, Neenah, Wis. Filed Aug. 10, 1882.

282,222. CAR-BRAKE: John H. Pitard, Mobile, Ala. Filed June 5, 1883.

282,229. RAILWAY ELECTRIC SIGNAL APPARATUS: Charles H. Scott, Boston, Mass. Filed June 18, 1883.

282,249. TRACK-CIRCUIT CONNECTOR: George Westinghouse, Jr., Pittsburgh, Pa. Filed May 23, 1883.

282,259. RAILWAY-RAIL JOINT: Joseph H. Bloomfield, Rio, and Martin W. Boone, Galesburg, Ill.; said Boone assignor to said Bloomfield. Filed Jan. 12, 1883.

282,281. RAILROAD SNOW-PLOW: John Q. Day, Red Cliff, Colo. Filed Aug. 8, 1882.

282,291. LANTERN: James Fanning, Salem, Mass. Filed May 5, 1883.

282,309. RAILROAD CHAIR AND TIE: Levi Haas, Chester, Pa. Filed Aug. 28, 1882.

282,324. RAILWAY-CAR: Wales Hubbard, Wiscasset, Me., assignor of one-fourth to James H. May, Washington, D. C. Filed April 25, 1883.

282,330. STEAM-BOILER: George Kingsley, Leavenworth, Kansas. Filed April 10, 1883.

282,382. ROCK-DRILLING MACHINE: Alfred Shedlock, Brooklyn, N. Y., assignor to John D. Shedlock, same place. Filed Nov. 27, 1882.

282,383. NUT-LOCK: James H. Sheehan, Bangor, Me., assignor of one-half to Ezra L. Sterns, same place. Filed May 19, 1883.

282,388. CUT-OFF-VALVE GEAR: Le Grand Skinner, Erie, Pa. Filed May 29, 1883.

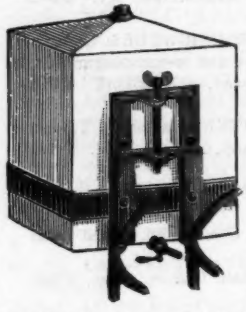
282,397. CAR-COUPLING: Andrew A. Stetson, Florida, Mo. Filed May 17, 1883.

282,404. VENTILATOR FOR LOCOMOTIVE CINDER-CHAMBERS: Jas. K. Taylor, Boston, Mass., assignor to J. K. Taylor Company, Concord, N. H. Filed April 28, 1883.

282,438. CAR-COUPLING: Washington I. Byard, Little Falls, N. Y., assignor to himself, M. Willett Briggs, and George A. Oppel, same place. Filed May 19, 1883.

Journal Box Attachment.

WE give herewith an illustration of the journal box attachment invented and patented by Enos Curtiss, of Findlay, Ohio. The object of the invention is to obviate the annoyance of a heated journal box, causing delay and frequently loss. Mr. Curtiss's attachment can be made to a heated journal box easily and quickly, and the solution of the can or box allowed to run into the journal box and form a metallic coating around the journal, stopping its cutting, cooling it off and lubricating while running from station to station. One can or box is all that is needed to a train of cars.



Murphy's Patent Locomotive.

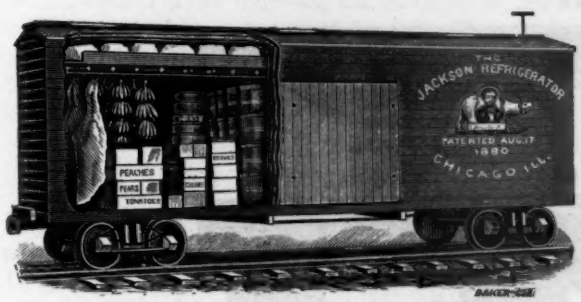
G. B. JOHNSON & CO., of Granville, Ohio, are owners of Murphy's Patent Locomotive, an invention which presents such originality, and suggests such possibilities, as give it pre-eminence among the numerous improvements thought out in this busy-brained age of the world. We understand that the above firm are anxious to have an engine built on the Murphy plan and tested, and will lay the matter before some locomotive builders very soon. They are encouraged in this intention by the opinion of every railroad man who has seen drawings of the proposed locomotive, that it is a great improvement. They believe that a perfectly built specimen of said engine, is capable of drawing fifteen sleepers sixty miles an hour, and thus to earn the large amount of money said to have been offered

by Mr. Vanderbilt, for a locomotive capable of performing this remarkable feat of combined strength and speed. Its owners hold the opinion that their patent engine will make better time, and take a heavier train, than any locomotive of the same height now in use.

Its alleged advantages are in the increase of heating surface, increased weight on the driving-wheels, and the direct application of power to each driving-wheel. Moreover, the change of the location of the steam-chest, with a direct driving-bar to each wheel, and the piston-rod resting on the cross-heads, is believed to be a great relief to the wear of the cylinder. Another alleged advantage of the application of power to the driving-wheels, is in lessening the probability of accident by the breaking of the driving-bars. On the present plan, many men are killed and other great damage done, not to speak of frequent delays of trains, by the breaking of driving-bars. An effective provision against this accident would be of incalculable use; and this, it is claimed, is more or less approximately found in the structure projected in the Murphy patent. Other alleged improvements of less importance need not be mentioned at this time.

We are among the people who look forward to the creation and testing of the Murphy Patent Locomotive, with the interest due especially to the practical introduction of all improvements on a comprehensive scale.

The Jackson Refrigerator Car.



THE interest of dealers in meats and perishable goods is receiving fresh impetus in the increased traffic in dressed meats, shipped in refrigerator cars, and in the increased facilities for holding over such products. The inventive genius of the time is stirring up the refrigerator car question, and some form of construction will be adopted as meeting the great want. One of the newest refrigerator cars is that of Chas. P. Jackson, superintendent of the Jackson Refrigerator Company, of Chicago.

An experience of years in the construction of cold storage houses entitles his claims to a careful consideration. His plan of construction is simple and practical. Broken ice and salt may be used, or full-sized cakes of ice. The ice being entirely overhead gives as a result an even circulation of cold air all through the car, and with a cold and perfectly dry atmosphere. All is so arranged that the temperature may be regulated at will, a new feature in refrigerator cars. The Jackson Refrigerator Car has the endorsement of practical men, as being the "coming car."

NINE cargoes of coal-dirt were recently shipped from collieries in the vicinity of Pottsville to Boston, to be mixed with bituminous coal.

The Rothrock Locomotive.

OSCAR ROTHROCK, of Beech Creek, Clinton county, Penn., has achieved enviable notoriety as an inventor. He is quite a young man, but is already the father of certain inventions which are remarkable, among other reasons, for the importance of the object aimed at in them. For example that one under review relates to the class of locomotives which carry their own supply of water and fuel; and it has for its object to provide a novel construction of boiler, water tanks, and fuel receiver, whereby the water and fuel carrying capacity of the locomotive is greatly increased over ordinary locomotives of a corresponding length and width, and the products of combustion from the fire box utilized for generating steam more rapidly than in ordinary boilers, and with a less amount of fuel than heretofore.

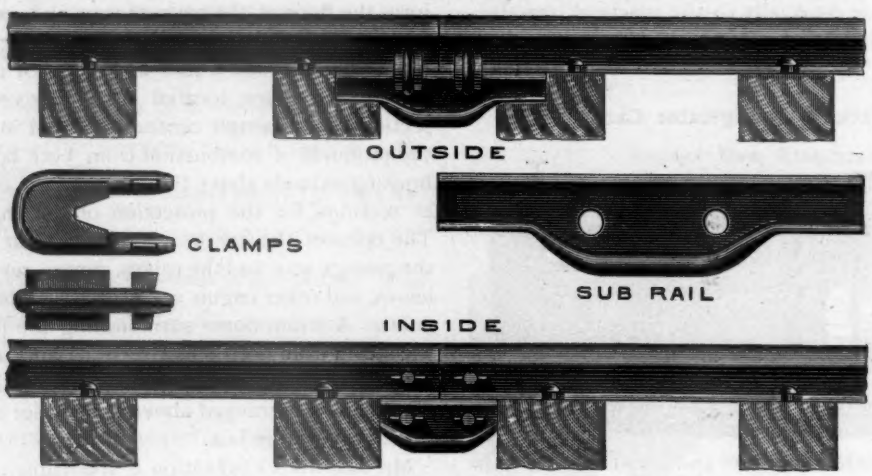
To these ends the invention consists in a twin boiler, which is composed of two parallel sections or shells having smoke flues, and communicating at their front ends with a fire chamber or box. A space or passage way is left between the two boiler sections for the reception of the engineer and the storage of fuel, and at the sides of this passage way are located water tanks, which may also form the floor of the passage way, and extend across the latter above the line of the boiler, in rear of the engine room, so as to form a roof and tanks of a large capacity. Smoke stacks are located at the rear ends of the boiler sections; or a single centrally-located stack may receive the products of combustion from both boilers. A cab or housing extends above the passage way, between the boiler sections, for the protection of the engineer and fuel. The door of the fire box is arranged at the front end of the passage way, and the valves, gauges, reversing and brake levers, and other engine accessories are also located at this point. A steam dome surmounting the fire box receives the steam from both boiler sections, and is connected with the valve chests of the working cylinders; or a steam dome may be arranged above each boiler section at points in rear of the fire box.

Mr. Rothrock's invention is applicable to railroad locomotives of every description, traction, dummy, and agricultural engines, steam-propelled cars and carriages, and portable engines of all classes.

The inventor claims as advantages of the system described: 1. That an engine having two small boilers with water tank and fuel receiver in one structure will do more work than an engine having one large boiler, even if the two boilers together are one-third smaller than the single boiler; therefore smaller boiler capacity will have the motive power of the larger boiler. 2. A twin-boiler locomotive can run in either direction and need never be turned, thus preventing the serious casualties arising from running ordinary engines backwards. 3. Weight and consequently time are saved. 4. The twin locomotive having a tank going down to within four inches of the rails or ground, as is proposed in certain cases, will not leave the track as readily as a single boiler locomotive. 5. A twin locomotive built under the inventor's housing, covering it from side to side and from end to end, and down to within three inches of the cross-ties in the track, will wear three times as long as one built with all its valuable parts exposed to the action of the weather. 6. In the new locomotive the arrangement of the steam and water domes, fire box or

boxes, etc., is such that the actual expense of running need not exceed one-half of the present cost. 7. The new engine can be built of almost any length and capacity, or may be constructed with boilers four or five feet long, as proposed for small self-propelling steam fire-engines. 8. The twin boiler system can be applied to any use or service as a motive force, being well adapted to tramways, plateways, small wagon-road engines, etc., as well as the largest railway locomotive; to this end it is intended to build the boilers with the tanks almost on a line with the axles in some instances, and to place them partially over the wheels in others, and to extend the water tank down almost to the ground, or place it partly above or partly below the boiler, as circumstances may require, cutting away the water tank, so to speak, to place advantageously the controlling gear, axles, etc. 9. The small truck at one or both ends of the Rothrock locomotive, as shown in the specification published by the Patent Office, can be dispensed with as circumstances may require.

Certainly Mr. Rothrock has provided an abundance of material prompting to further inquiry. If his locomotive is capable of doing what is claimed for it, its invention cannot fail to become an epoch in the progress of railway development.



THE MORGAN RAIL JOINT.

The Morgan Rail Joint.

THIS invention consists in placing underneath the joint of the rails of a railway track, what by way of designation may be called a sub-rail, and securing the same to the track-rails by clamps and keys, so that the track-rails and the sub-rail will be clamped firmly together, and both supported by the cross-ties.

The accompanying electrotype shows a longitudinal view of the outside of the track-rails and sub-rail; also in that view is exhibited the supporting cross-ties and the rabbets in the ends of the joint ties. Where the base of the sub-rail rests, the rabbets have a vertical depth of about two and one-fourth inches, and a horizontal depth of about four inches, extending from the inside of the track-rails outward to the ends of the ties. The inside view shows the track-rails, sub-rail and the ends of the staples of the clamps, and also sections of the ties inside of the rabbets; a top and longitudinal view is given, presenting the cast-iron jaw, staple and keys which constitute the clamp. The sub-rail extends from the middle of one cross-tie to the middle of the next one, and is of such depth that when it rests on the bottom of the rabbet, the track-rails will rest fairly upon the top of the sub-rail, and also on the top surface of the same cross-tie beyond the rabbet. It will be readily seen that the wear on the top surface of the joint tie, and on the bottom of the rabbet must be the same. There is no appreciable wear of the sub-rail; it will therefore last a long time and always be competent to the service. The track cannot "run" unless it runs the road-bed with it. The track-rails being clamped to the sub-rail, which is stationary, the action of the track-rails by expansion and contraction, causes a tightening of the clamps, the cast jaws of which have eccentric inner surfaces, a "bite" at the limit of either the expansion or contraction of the track-rails; thus rigid contact of the track-rails with the sub-rail is constantly maintained by the clamps, so that the ends of the track-rails are at all times on *the same plane*, and either track-rail cannot be depressed below the other by approaching locomotives or cars; but whatever depression may take place, it is necessarily *the same in each rail* and is common to the track generally, thus preserving the surface substantially as smooth and true at the joint as at any other part of the track.

These joint supports and fastenings can be cheaply made by the railway companies themselves, out of the scrap iron and worn rails which they now sell for less than one cent per pound. The sub-rails are made by swaging down at the ends the head of the pieces of scrap track-rail, cut to suitable length, about eighteen inches. The economy, however, which is claimed for this joint is not wholly in the use of scrap and old material, and in the effect of smooth, enduring joints upon the rails themselves and the rolling stock, but this method enables the restoration of the best form of track-rail, which went out of use solely to make the fish-plate joints at all practicable. The evidence of the value of this joint is not only manifest in its simple mechanical construction and its direct support, but actual use under severe conditions since Oct. 23, 1883, has, to a measurable degree, demonstrated the economy, competency and perfection claimed for it.

All parties interested in the above invention can learn further particulars by addressing Richard P. Morgan, Jr., at Dwight, Ill.

O. P. Mossgrove's Car Coupling.

THE patentee of this device lives at Steubenville, Ohio. By his plan the drawheads are divided vertically at their outer ends, to join the members, which members are recessed at their upper edges to form hooks. Between the members of the drawheads are pivoted the tumblers, upon pins; and outside of these members, upon ends of said pins, are pivoted the connecting clevises. The tumblers normally project in front of the outer ends of the drawheads. In order to couple the cars, one or other of the connecting clevises is to be turned upward against the arm of the tumbler; the other is to be turned down below the drawhead. The clevises being in this condition, the cars are simply to be backed together, which will bring the heels of the tumblers together, and give the arms of said tumblers a sudden movement toward each other. This movement will throw the connecting clevis forward over the hooks of the opposing car, and thus automatically make the connection. In case the cars to be connected vary much in height, the connecting clevis of the higher one should be set up for coupling. To uncouple the cars, the clevis which makes the connection is simply to be raised out or off from the hooks formed by the members being recessed at their upper edges, which may be done by rod or chain or other connections extending to the top and sides of cars; and these connections may be so arranged that the clevises may be held up above the drawheads of the opposing car, so that the cars may be uncoupled while in motion if desired. The couplings constructed in this manner are said to be very cheap, durable, and certain, and are applicable to cars of any height.

New Patent Car Roof.

WE have received some particulars of the car roof lately patented by Alfred P. Le Gros, of Louisville, Kentucky. The object of Mr. Le Gros' invention is to improve the car roof of a railroad box or freight car in the following two particulars: first, to have the wooden roof covered with canvas, which is always well saturated with paint; secondly, to have the running-board fixed or attached to the ridge of the roof in such a manner that it can be removed without injuring the roof. The original object is that the roof of the car be guarded from breaks, holes or leaks of any kind.

Laying down the side beams and gable-rafters, as usual, the inventor lays upon them planks of convenient thickness running down from ridge or middle on each side beyond the side beams, as is now customary. These boards are nailed down the side beams and rafters as usual. Such boards are say six inches wide on their lower surface—with a half-rabbet cut out at each edge from their upper faces, where they meet the adjoining boards—except the two extreme boards, which have the rabbet cut in only one edge—the two half-rabbets together leaving room for a dovetailed stick. The lower edges of the rabbet are slightly inclined downward to where the two boards meet. On either side of the rabbet is a groove, and a similar groove is put in each side of the dovetailed stick. The dovetailed sticks should protrude slightly—say one-fourth inch—above the upper surface of the boards; but this is not essential. On the upper surface of the boards, and along the inner surface of the rabbets, a thick coat of ordinary paint is laid.

Over this coat of paint, and fitting into the rabbets, canvas is drawn, and this canvas is held down by the dovetailed sticks. The canvas is painted also on its upper side. The object of the paint on the inner side of the canvas is mainly to protect the wood from warping and the nails from rusting.

In order to construct the roof according to this method, the first board, beginning at one end of the frame, ought first to be nailed down next its upper surface, and the surface of the rabbet should be painted heavily. Then draw the canvas over it, and afterward paint the lower side of the canvas where it fits into the half-rabbet, as well as its upper side; then draw it into the half-rabbet. Next, the dovetailed stick is laid down, and a coat of paint put on its upper side or on the inside of the canvas joining it. Then put paint on the other side of the canvas. The next board is then laid down; but at least the inside of the half-rabbet which joins that of the first board has to be painted before the board is nailed in its place. The builder will proceed in the same order to lay down each board, put on paint, draw the canvas farther, lay down the next dovetailed stick and the next board, nailing down each board when it is put in its place till he comes to the last board, which has a half-rabbet on only one edge or side.

The object and effect of the inclined bases of the rabbet is to keep a reservoir of moist paint between them and the flat base of the dovetailed stick, and the same object and effect will be also subserved by the grooves in the sides of the rabbet and stick.

Mr. Le Gros claims for his patent: 1. Freedom from leakage; 2. Ease, rapidity and cheapness of repairs; 3. Cheapness of construction; 4. No use of corrosive substance; 5. The canvas will neither expand nor contract; 6. No kind of weather will affect it.

This roof can be constructed for twenty dollars, or but a little over that. No nail or piece of iron or metal of any kind will be exposed to the action of the atmosphere. The roof is first laid with one and three-quarter or two inch planks, tongued and grooved, but with a groove on either side so as to receive a quantity of thick paint, protected and kept there by the heavy cotton cloth (or canvas as the case may be), which passes under and around the tongue; the paint thus keeping the cloth moist and pliant, will inevitably prevent leakage. All parts of the roof are protected by paint and canvas. The paint is protected by the groove and rabbet. The canvas will yield so that it will not be torn by the rolling or jarring of the car. The plank may split underneath, but being covered by a painted canvas (top and bottom) no leak will be caused thereby. Should a part of the plank or canvas be torn off from any cause, a part of the roof can be replaced at once. No especial skill is required in its construction. One man and two active stout lads can construct three in one day.

The roof may be constructed of pine or poplar lumber, and the canvas or cotton cloth used may be inferior if the paint be well applied. One good coat of paint per annum will be sufficient.

Rothrock's Safety Device for Locomotive Pilots.

THE device patented by Oscar Rothrock, of Beech Creek, Clinton county, Penn., on the tenth of July last, relates to,

a safety attachment or guard device for locomotive-pilots or cow-catchers, the object thereof being to remove obstructions, dead or alive, from the track and prevent the train from passing over them. The pilot or cow-catcher of a locomotive as ordinarily constructed, does not extend to the track rails, and hence it frequently happens that an animal or other object, after having been struck by the pilot, drops again in front of it, or is otherwise brought into such a position that the locomotive and train pass over the obstruction, consequently rendering the train very liable to be thrown off the track.

Mr. Rothrock's invention is designed to obviate such accidents; and it consists of a sheath or hood which conforms to the shape or contour of the pilot, and is made to slide up and down on its outer or inner surface. The bottom edge of the sheath is provided with two notches, which receive the track rails and permit the central portion of the shield to sweep the space between them. The sheath slides up and down on roller ways on the pilot bars, and is combined with suitable mechanism for operating it from the cab or engine room of the locomotive. The sheath, when lowered to its full extent, projects beyond the track rails and moves in close proximity to the cross ties or sleepers, so as to effectually prevent any obstruction from passing under the pilot. The sheath generally carries the brushes for sweeping the track rails, and may also carry the scoop and hose connected therewith for taking up water when the train is running. It is proposed to place the brooms or brushes under the shield or to lay them down into it, when the shield is used upon a freight train. The inventor provides a forked connecting rod, one branch going down on each side of the draw-head; or he uses two connecting rods or shafts from main rod. He also proposes to leave notches of ample size to receive the bumper blocks or buffer blocks, when an engine is supplied with the same. On new style or twin locomotives (described elsewhere in this issue), it is intended to make the shield of such proportions that it will protect the front of the engine housing, or in other words prevent any object from being thrown against the glass. In some cases this upper extension will be of lattice work, or otherwise arranged so as not to obstruct the view. On these engines the inventor will also use a wheel and knuckle, or ball-jointed controlling gear, and other improvements which will be specified at the proper time.

Successful Second Trial Trip of the Burton Stock Car.

THE subject of stock transportation is one that has already attracted wide attention, and especially so since the marvelous success of the first trial trip of the Burton Stock Car. That event aroused great interest on the part of the American Humane Association, and Mr. Henry Horn, as special agent of the society, was sent with the second train of Burton cars that came to Boston from Chicago. There were three cars of the Burton patent, containing in all forty-eight cattle, one car-load of which were not up to the average of shipping cattle. At Binghamton, N. Y., several of the ordinary cars used for the transportation of cattle were taken on, giving an excellent opportunity to compare the merits of the old and new systems. The trip from Chicago was made with a number of delays, and occupied 105 hours, about 50 hours more than is intended should be used by the Burton car when it is run in regular trains, its construction being such that trains may be run on passenger-train time. Mr. Horn pronounced himself as very highly pleased with the Burton car, and says that it equals any of the several improved stock cars which he has previously tested. The shrinkage was twenty pounds to a head on cattle in the Burton cars, while sixty pounds is the minimum of past records; and in no essential for the comfort of the animals and their transportation and arrival in sound condition, was the Burton car lacking. In fact, so far as Mr. Horn could judge, it filled every requirement, beyond any previous tests of other cars. The result may well be a source of gratification to the company, and is worthy of public attention, as giving assurance that the day will soon be at hand when cattle may be transported from Chicago to Boston, and arrive here in as good condition as when first placed upon the cars.

Varnish for Foundry Patterns and Machinery.

A VARNISH has been patented in Germany for the above purpose, which, it is claimed, (we do not know how justly), dries as soon as put on, gives the patterns a smooth surface, thus insuring an easy slip out of the mould, and which prevents the pattern from warping, shrinking or swelling, and is quite impervious to moisture. This varnish is prepared in the following manner: 30 lb. of shellac, 10 lb. Manila copal, and 10 lb. of Zanzibar copal are placed in a vessel, which is heated externally by steam, and stirred during four to six hours, after which 150 parts of the finest potato spirit are added, and the whole heated during four hours to 87° C. This liquid is dyed by the addition of orange color, and can then be used for painting the patterns. When used for painting and glazing machinery, it consists of 35 lb. of shellac, 5 lb. of Manila copal, 10 lb. of Zanzibar copal, and 150 lb. of spirit.—*Ex.*

THAT able periodical, the *North American Review*, remarks that no assertion in reference to woman is more common than that she possesses no inventive or mechanical genius, even the United States census failing to enumerate her among the inventors of the country. But, while such statements are carelessly or ignorantly made, tradition, history and experience alike prove her possession of these faculties in the highest degree. Although woman's scientific education has been grossly neglected, yet some of the most important inventions of the world are due to her. The Hon. Samuel Fisher, while Commissioner of Patents, said: "Any sketch of American inventions would be imperfect which failed to do justice to the part taken by woman." The New York *Times*, in an editorial upon woman's inventive genius, says: "The feminine mind is, as a rule, quicker than the masculine mind; takes hints and sees defects which would escape the average man's attention. Women frequently carry the germs of patents in their head, and cause some rude machine to be constructed which serves their purpose. If women would fix their minds on inventions, it is entirely probable that they would distinguish themselves in this line far more than they have done hitherto." The *Scientific American* testifies of the inventions of women for which they solict patents, that in their practical character and in their adaptation of means to effect a definite purpose, they fully equal the same number of inventions made by men.

Illinois Central Railroad Company.

42d SEMI-ANNUAL CASH DIVIDEND.

A dividend of THREE AND A HALF PER CENT. in cash is declared, payable Sept. 1, 1883, to shareholders of the Illinois Central Railroad Company, as registered at close of business Aug. 11; also, an extra dividend of ONE-HALF OF ONE PER CENT. in cash, payable at the same time to said shareholders out of the earnings of the Southern Division for the six months ending June 30, 1883.

The stock transfer-books will be closed from Aug. 11 until Sept. 5.

L. V. F. RANDOLPH, Treasurer.

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Fine Brushes adapted for railroad use. All kinds of Artists' Materials. Colors for ready use, and all specialties for Railroad and Carriage purposes.

Railroad companies will save themselves great trouble in painting by allowing F. W. DEVOE & Co. to prepare their Passenger and Freight Car Colors. This will insure Durability, Uniformity and Economy. F. W. DEVOE & Co. manufacture from the crude materials which are the component parts of any shade, and they understand better their chemical relationship, when in combination, than can be possible to those who simply buy their dry materials and then grind them.

SEND FOR SAMPLE CARD OF TINTS.

Cor. Fulton and William Streets,

NEW YORK.

Patented March 7, 1882.

Hundreds of accidents occur annually from loose reins. When thrown over the dash or twisted around the whip, they are often switched off into the dirt, or the horse gets his tail over them, causing him to rear, or back, and often run away. All this avoided by using the

"SECURITY REIN HOLDER."

Holds the reins securely in position to be grasped instantly, with a firm hold on the horse's mouth if he be impatient or frightened.

Parties purchasing carriages can have the Rein Holder attached, without extra charge, by asking for it; or they can be attached to carriages in use, in two minutes, by any person.

Sent by mail on receipt of price: $1 for Japan; $1.25 Rubber finish; $1.50 Nickel; $2 Gold plated.

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The Bit Brace is made of steel, highly polished and heavily nickel-plated, with a cocobola handle and lignum-vitæ head. It has two sets of forged steel jaws, which will hold square and flat shank tools of all shapes and sizes, and round twist drills from 7-16 to 1-32 inch in diameter. The ratchet attachment enables the Brace to be used in places where there is not room to revolve the sweep.

Many attempts have been made to imitate the outside appearance of our Barber Improved Braces, but no one dares to use our Patent Jaws, as seen in this cut, and no brace is good without them. We guarantee these tools to be perfect in every respect, and that they will give great satisfaction to all who use them. Hardware dealers will furnish them on demand at our prices, or we will forward one by express on receipt of Three Dollars.

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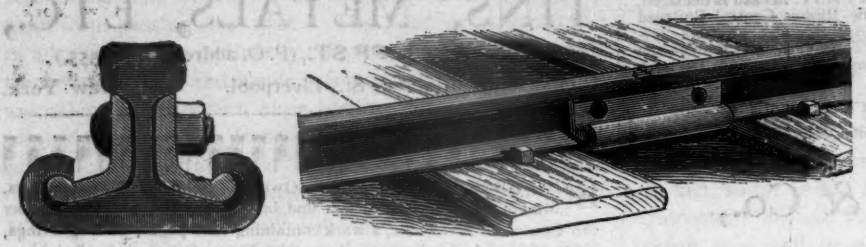

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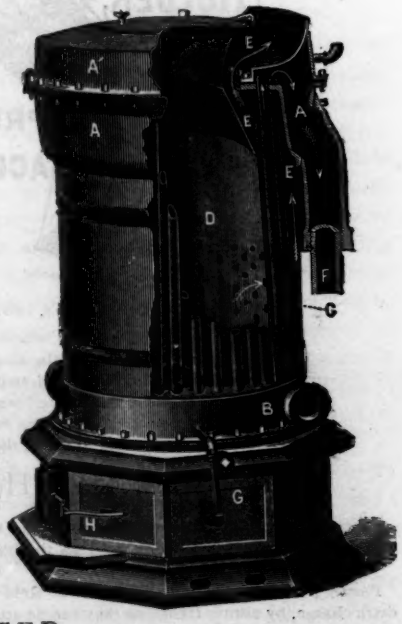

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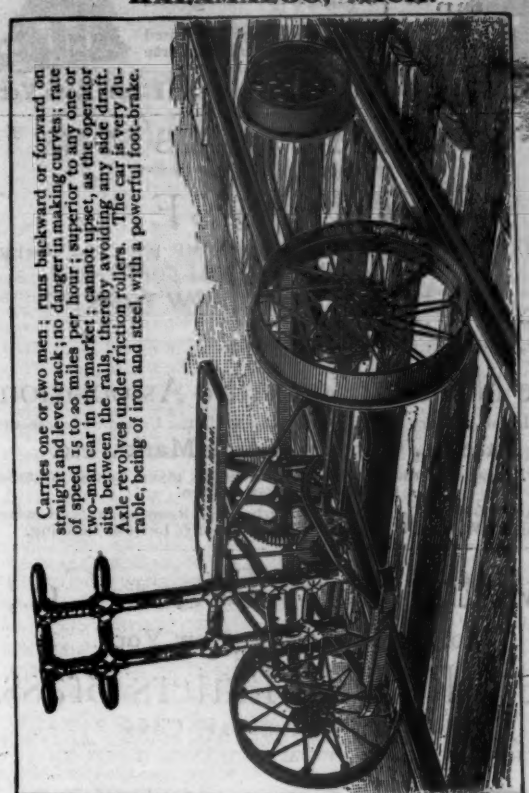

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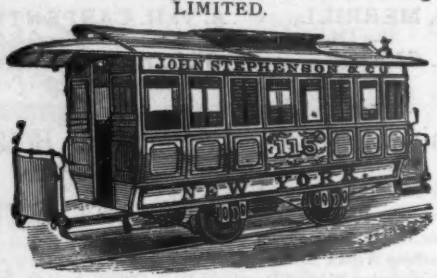

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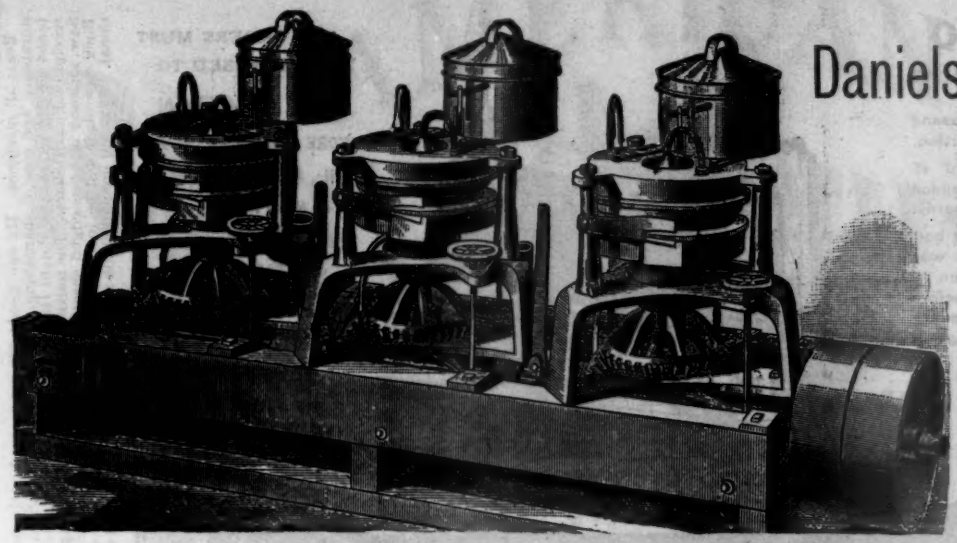

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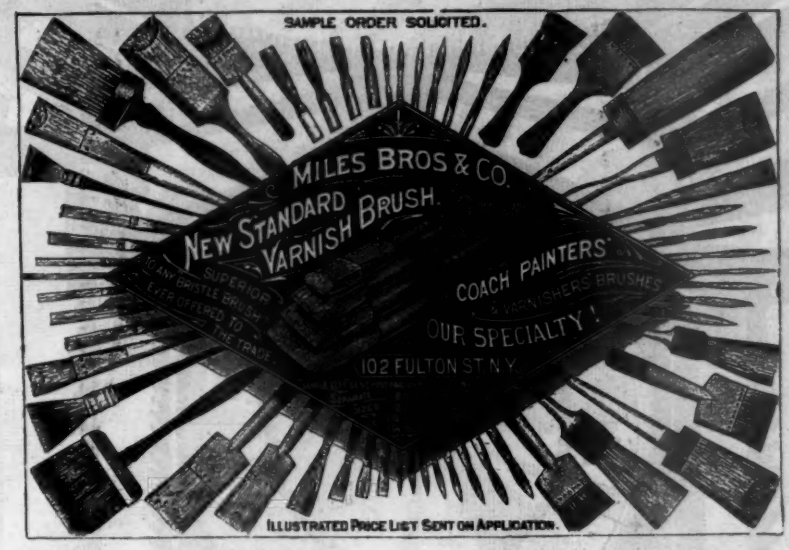
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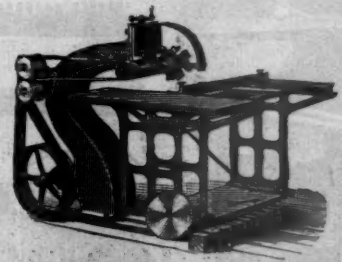

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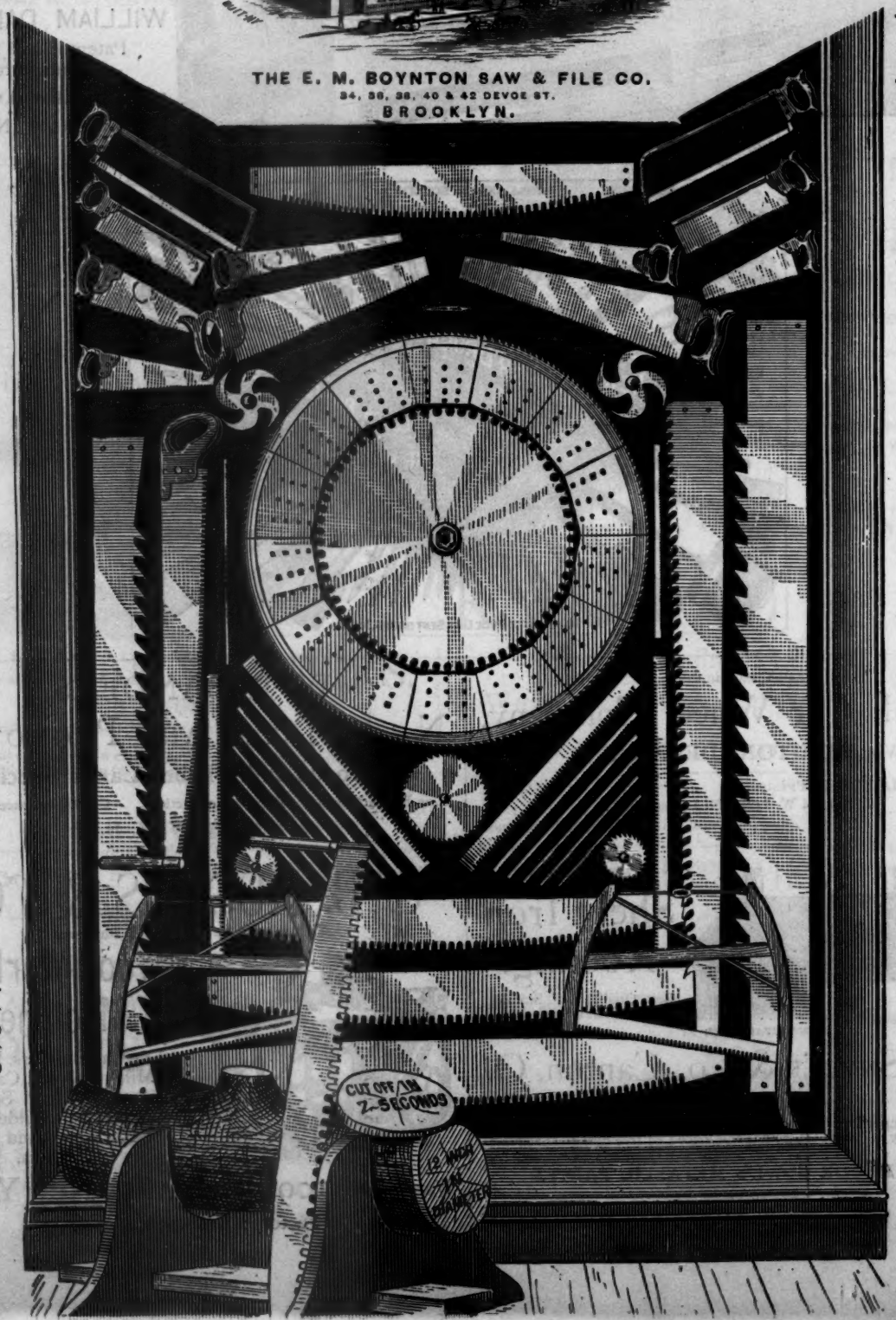

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